APRIL, 1933

COTTON

Serving the
TEXTILE INDUSTRIES

APR 19 1933

the
·STANDARD·COOSA·
·THATCHER· *Line*

·STANDARD· Durene ·COOSA·THATCHER·

Combed Peelers

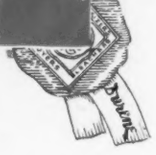
Combed Saks

PREEMO Durene

Selo-Peelo

Carded Peelers

THREADS



KNITTERS and weavers depend upon the uniform quality of the Standard-Coosa-Thatcher Line to keep down their seconds and build up their dealer and consumer demand.

Uniform quality is the backbone of the Standard-Coosa-Thatcher Line and is maintained by our rigid inspections and tests from the selection of the cotton, all the way through the spinning, mercerizing, bleaching, dyeing and winding.

See our Exhibit of Fine Combed Yarns at the Knitting Arts Exhibition— Booths #287—288—289

STANDARD—COOSA—THATCHER COMPANY
CHATTANOOGA, TENN.

Philadelphia, Lafayette Building
Chicago, 940 Merchandise Mart
New York, 456 Fourth Avenue
Charlotte, N. C., Cosby & Thomas, Johnston Bldg.

COLORED?

Yes! We Sell Colored Cotton Yarns and Natural Cotton Yarns

For many years, when a majority of the trade have thought of custom yarn dyeing, they have thought of Franklin Process. Their confidence has not been misplaced.

Now it is our purpose, when they think of cotton yarns, natural or colored, to make them think of Franklin Process again.

And we are already prepared to merit such confidence. We carry a large stock of the more commonly used counts and qualities of cotton yarns for immediate delivery. We have mill connections that will enable us to furnish other counts and qualities promptly. Our line includes a variety of qualities to meet practically every price requirement.

We can furnish not only standard items, but also specialties such as mock twist, ratines and slub yarns. In colored items we can furnish stock dyed yarns as well as package dyed yarns.

Your inquiries will receive courteous and prompt attention.

FRANKLIN PROCESS COMPANY

Yarn Merchants and Yarn Dyers. Also Manufacturers of Glazed Yarns and Machines for Dyeing and Bleaching Yarns in the Package Form, Cotton and Wool Raw Stock, Worsted Tops and Worsted Yarn on Jackspools and Machines for Soaking Silk.

Main Office and Plant at Providence, R. I. Branch Plants at Philadelphia, Greenville, S. C., and Chattanooga, Tenn. New York Office, 40 Worth St.

FRANKLIN PROCESS

COTTON YARNS AND CUSTOM YARN DYEING

No. 411

COTTON is published monthly by W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga. Subscription Rates, United States and Possessions, $1.00 for one year; $2.00 for three years; Canada, $1.50 per year; Foreign countries, $2.00 per year. Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

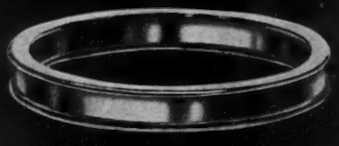
FOUR AIDS TO GOOD SPINNING

Result
- Bobbins Run as Fast as Spindle
- More Even Twist
- Even Yarn Packages
- More Yarn on Bobbins
- Spins Feeler Bunch in Right Place

Draper Made Bobbin

Bobbins Rising on Spindles Now Impossible

With Draper-Made Bobbins Fitted with Our New Patent Brass Bushing That Is Special for Stimpson Clutch



Spinning Rings with a New Finish That Will Reduce Your Traveler Bill

Let Us Prove It to You

MacColl Slub Catchers Clean Your Yarn of Large Bunches and Small Bunches

Without { Strain on the Yarn or Chafing the Fibres

MacColl Slub Catcher

DRAPER CORPORATION

Hopedale Massachusetts

Southern Offices Atlanta Ga and Spartanburg S C

THE TEXAS COMPANY

Announces

TEXACO TEXSPRAY COMPOUND

and a superior method

FOR COTTON CONDITIONING

This is one of the most important contributions to cotton manufacture in years. The advantages of treating cotton by means of sprays have long been known. They have only been partly effective. The Texas Company now offers the industry an entirely new development, Texaco Texspray Compound, and a new and superior method of application.

"Static" is no longer a problem

Cotton fibres treated with Texaco Texspray Compound overcome the effects of static electricity. Stoppages at the various machines, from picking tables to spinning frames, are minimized. Waste losses cut down and working conditions improved. The cotton fibres are soft and pliable; they lay parallel with a decided improvement in running qualities.

Here is a money-saving opportunity

Mill men who have seen the process are enthusiastic. Texaco Texspray Compound and the equipment for its application are decidedly in advance of all previously known methods of spraying cotton.

Spraying equipment is leased to the mills by The Texas Company. Write to The Texas Company for complete information about Texaco Texspray Compound, and its application and results.

★

The Texas Company has exclusive patent rights under the inventions of

GEORGE HILL

and an exclusive license for the cotton and rayon industries under Thompson patent 1401376, granted Dec. 27, 1921, relating to the conditioning of textile fibres with oil.

THE TEXAS COMPANY

135 EAST 42nd STREET, NEW YORK CITY

What about you?

Concerns that have installed Butterworth Sanforizing equipment are busy.

The Erwin Cotton Mills, West Durham, N. C., have just put in a fourth Butterworth Sanforizer.

The Union Bleachery, Greenville, S. C., has installed three Butterworth Sanforizers; Pepperell Mfg. Co. has installed one each at Lewiston, Maine, and Lindale, Ga.

The latest type of Butterworth Finishing Machine, with improved blanket tension device which gives greater adjustment to blanket and assures the blankets giving a maximum of service. This machine plays an important part in good Sanforizing.

Other progressive concerns to install Butterworth Sanforizers include Delta Finishing Co., Philadelphia, Pa., Lanett Bleachery & Dye Works, Lanett, Ala., North Carolina Finishing Co., Salisbury, N. C., Ramapo Finishing Corp., Sloatsburg, N. Y., and Ware Shoals Mfg. Co., Ware Shoals, S. C.

Butterworth Engineers will be glad to discuss Sanforizing in connection with your products and if you desire will show you *why* there is so great a preference for Butterworth Sanforizers. Bulletins on Butterworth Sanforizers will be sent promptly upon request.

See our display at the
KNITTING ARTS EXHIBITION in Philadelphia, April 24-28
Booths 283 and 332

H. W. BUTTERWORTH & SONS CO.
Established 1820
PHILADELPHIA, PA.
PLANTS *at* PHILADELPHIA *and* BETHAYRES, PA.

New England Office: TURKS HEAD BUILDING, Providence, R. I.
Southern Office: JOHNSTON BUILDING, Charlotte, N. C.
In Canada: W. J. WESTAWAY CO., Hamilton, Ontario

BUTTERWORTH *Finishing* MACHINERY

A COMPLETE LINE OF RAYON AND FINISHING MACHINERY FOR THE TEXTILE INDUSTRY

For Cleaner and Evener Picker Laps

And Better Running Carding and Spinning

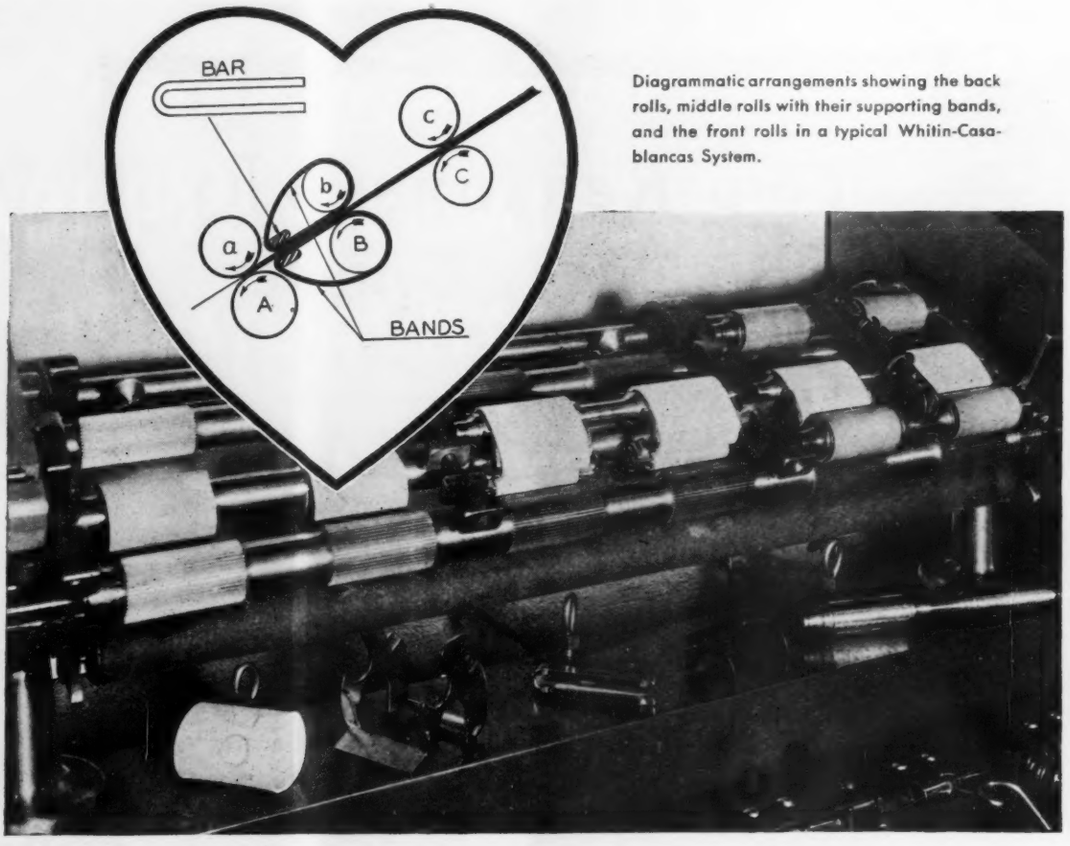
Install Aldrich Synchronized Single Process Picking

Your present pickers are used, and with the Aldrich System they will do anything that new pickers can do. The cost is small, and the saving in labor and power pays from 50% to 150% annual returns on the investment.

Made and installed by

ALDRICH MACHINE WORKS

Greenwood S. Carolina



Diagrammatic arrangements showing the back rolls, middle rolls with their supporting bands, and the front rolls in a typical Whitin-Casablancas System.

The HEART *of* CASABLANCAS SPINNING

Successful long draft Spinning consists in controlling *both the short and the long* individual fibres in the roving. All systems do this partially. Only the Whitin-Casablancas System does it *completely*. Only the Whitin-Casablancas System *can*, for no other system can employ the positively driven supporting bands controlling the fibres right to the nip of the front rolls. Also, the Whitin-Casablancas System is cleaner, for the positively driven top band bears against the top clearer. The relatively great circumference of the top roll minimizes the danger of roving lapping around it, and being positively driven, it turns always with a uniform speed – assuring even yarn.

A greater number of Whitin-Casablancas Long Draft Frames have been sold each year since the system was introduced, for more mills each year have realized their advantages.

WHITIN MACHINE WORKS
Whitinsville, Mass.

Send me a copy of the "The ABC of Long Draft Spinning".

Name.....

Address.....

City..... State.....

WHITIN MACHINE WORKS

ESTABLISHED 1831

Fales & Jenks Division
Woonsocket Machine and Press Division

Whitinsville, Massachusetts, U. S. A.

Charlotte, N. C. Atlanta, Ga. Greenville, S. C.

Two Reasons Why TUFFER is Tougher

1. Card *wire* must be tough, strong, and of even temper, but it carbon properties must be exactly correct, to give it what we claim a tougher quality. In TUFFER Card Clothing the wire is tempered to just the right degree to prohibit the development of sharp crown and knee. It grinds more quickly, and a smooth clear cut point is obtained.

2. The wire is set in our own specially constructed *foundation.* Where others rely on buying their foundations, we lay our own. Our operatives are thoroughly experienced in this work. Our principal aim is to make the foundation flexible, using only the glue necessary to hold the plys together; for if a foundation is hard, and full of glue, it is detrimental to the life of the wire, causing it to crystallize and break out.

These are the two all important factors of Card Clothing; a flexible foundation and a wire that is correct in carbon content, but still tough.

Is it not fair to ask—why pay more for Card Clothing that does not possess the merits of TUFFER Card Clothing?

HOWARD BROS. MFG. CO.

Home Office and Plant: Worcester, Mass.

Southern Plant:
244 Forsyth St., Atlanta, Ga.

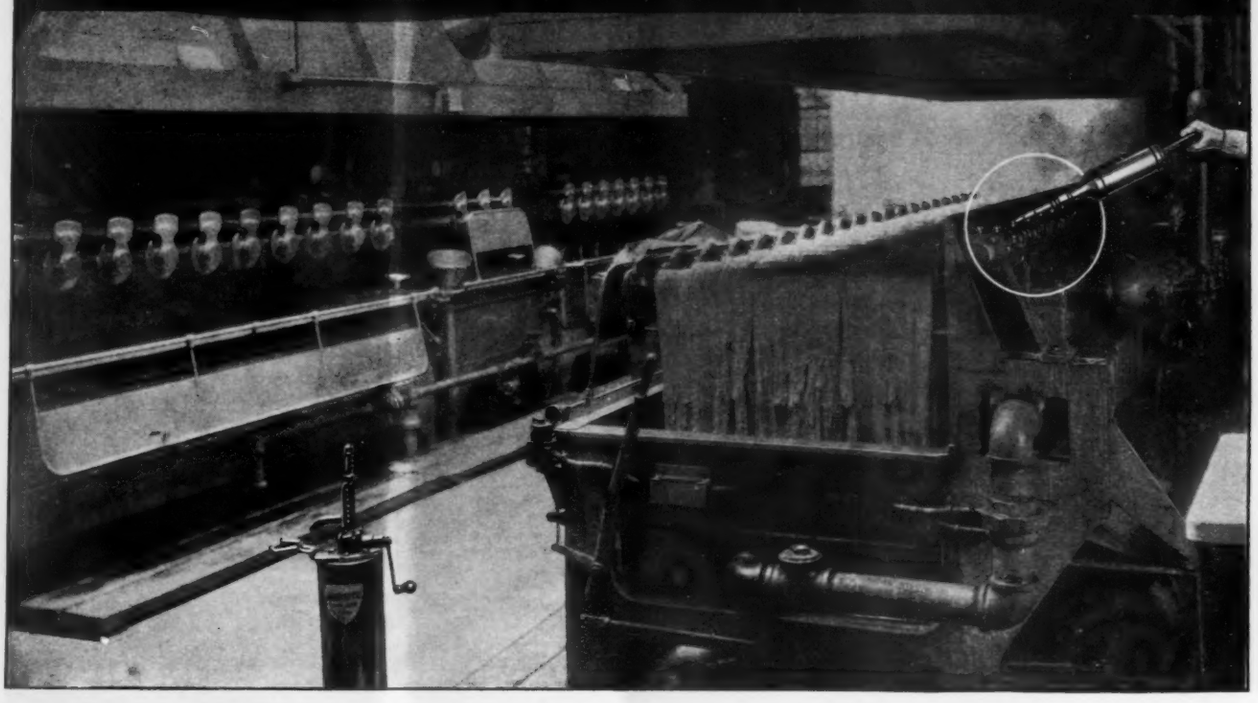
Branch Offices:
Philadelphia, Pa., Dallas, Texas,
and Washington, D. C.

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.

1866 CARD CLOTHING 1933

Franklin Rayon Corporation

ADOPTS ALEMITE PUSH TYPE LUBRICATION SYSTEM THROUGHOUT



THE FRANKLIN RAYON CORPORATION of Providence, Rhode Island, is perhaps the largest user and converter of rayon in this country. It operates the most modern equipped plant in this industry and Alemite Push Type Lubrication Systems PLUS Alemite Industrial Lubricants play an important part in its efficient operation.

The story of this corporation's modernization with Alemite equipment is too long to be told within space limitations.

But here is a small part of it:—Five new skein dyeing machines were recently purchased from the Smith Drum Company of Philadelphia. Modern as this equipment is and increasing production through reduced dyeing time as it does—yet these machines came through equipped with grease cups.

The Franklin Rayon Corporation, in line with its lubrication policy, fitted this equipment with Alemite Push Type fittings.

Where oil had been used at a cost of 25c a gallon with attention necessary once and twice a day, Alemite Lubricant at a very low cost per pound is now used and lubrication time reduced to once every two or three weeks. One pound of Alemite Lubricant does the work of 2½ to 3 gallons of oil.

Learn the whole story of profits for you in your own mill made possible by Alemite High Pressure Lubrication PLUS Alemite Industrial Lubricants. Tests conducted in your own mill to PROVE these facts, without obligation. Write today.

ALEMITE CORPORATION (Division of Stewart-Warner) 720
2682 N. Crawford Avenue, Chicago, Illinois.

Gentlemen: I am interested in information leading to the reduction of costs through proper lubrication.

Name_____

Company_____

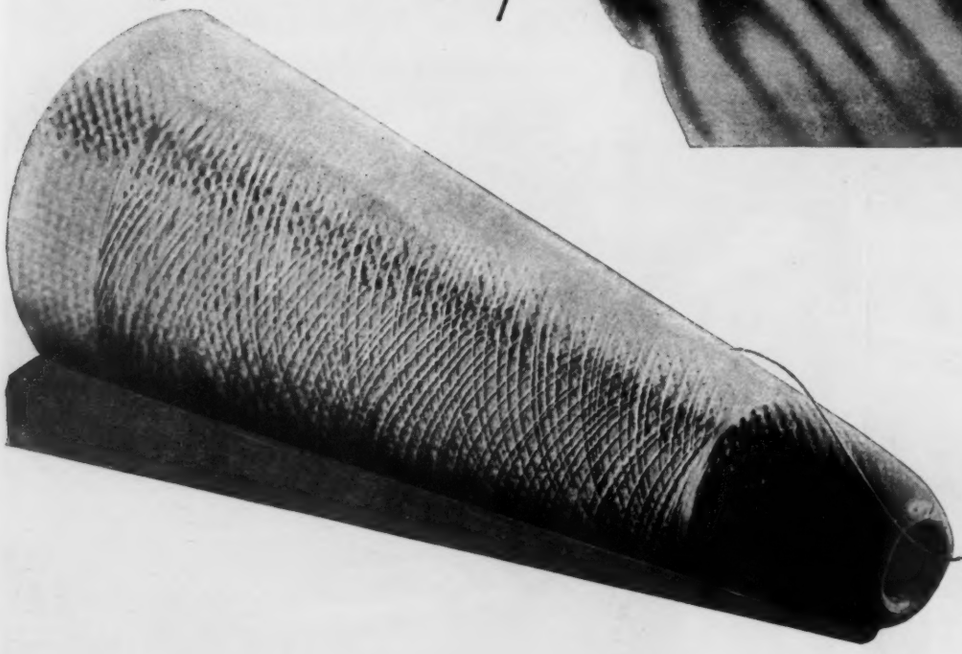
Address_____

City_____ State_____

PIONEERS IN SPECIALIZED LUBRICATION FOR INDUSTRY

VELVET SURFACE CONES....

Originated by SONOCO



feeds off to the last turn

SONOCO'S 30 years and more of specializing in the manufacture of one-time paper carriers for textiles, are the background of an experience from which have sprung most of the major improvements that have been made in this field.

The Velvet Surface Cone was an exclusive SONOCO development, that revolutionized the coning of rayon, silk and fine count cotton yarns. Only by a thorough knowledge of the problems to be solved; only by tireless and costly experiments plus a willingness to render a genuine service, could its ultimate perfection have been achieved.

It naturally follows that the standards maintained by SONOCO are the standards of the industry.

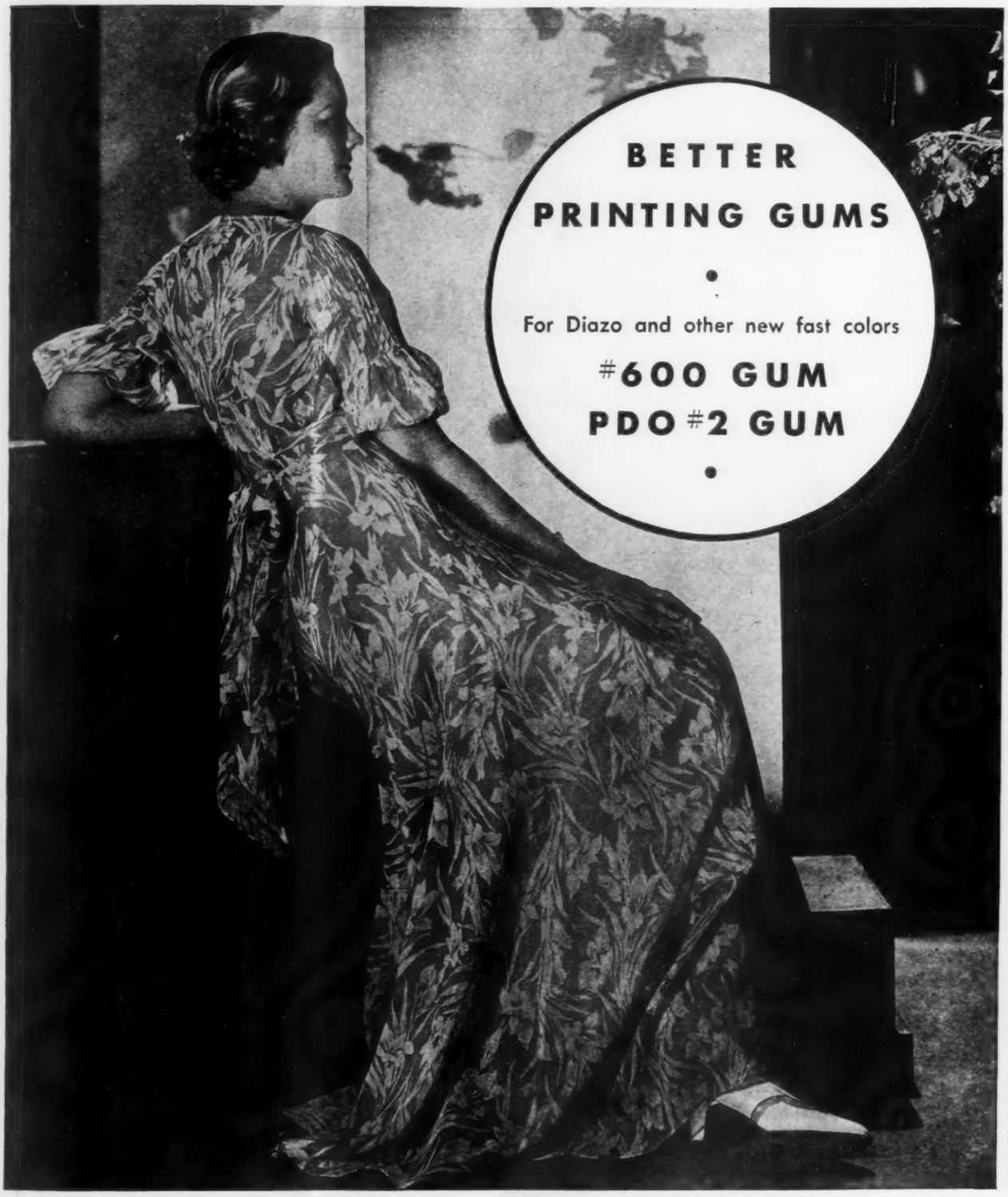
SONOCO PRODUCTS COMPANY

HARTSVILLE ● SOUTH CAROLINA

Main Plant and General Offices: Hartsville, S. C.

Branch Plants at: Rockingham, N. C. Plainfield, N. J. Brantford, Ontario

New England Sales Office: P. O. Box No. 170 New Bedford, Mass.



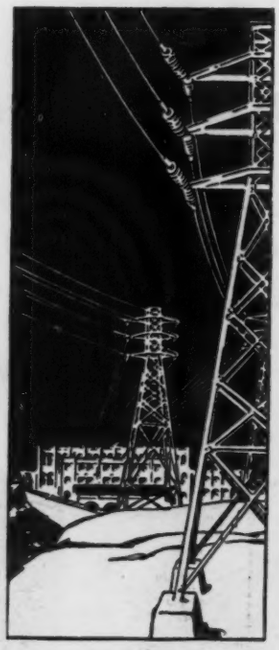
STEIN, HALL & COMPANY, INC.

EST. 1866

285 MADISON AVENUE NEW YORK CITY

BOSTON PROVIDENCE CHICAGO PHILADELPHIA CHARLOTTE SAN FRANCISCO
TORONTO ROCHESTER BUFFALO LOS ANGELES

HEADQUARTERS FOR ALL TEXTILE STARCHES, DEXTRINES, GUMS AND TAPIOCA FLOURS



A Textile Tide *that* Will Not Turn

In the few years before business in general slowed its pace—the flow of new textile manufacturing plants was to the South and, most notably, to Georgia.

Confidence restored, business out of the doldrums, that progress will resume. Even in a year like 1932 Georgia showed an increase in spindles—an increase that was greater than that recorded for any other southern state.

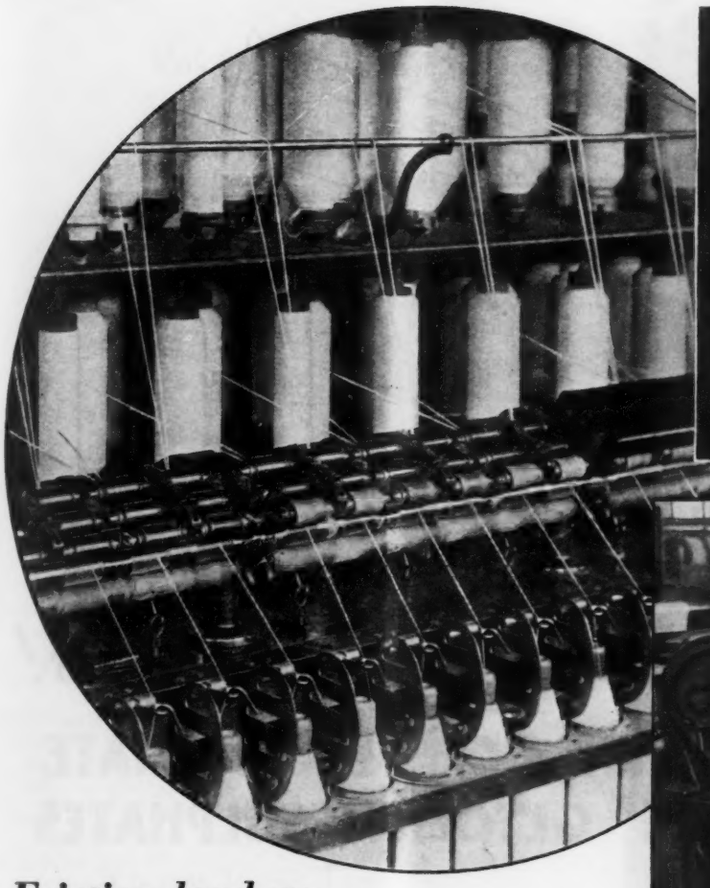
Georgia's rapid growth as a textile center has not been founded on factors that a depression can destroy. Georgia has the textile advantages of all Southern states—and more. Besides cotton, it has abundant pure water; electric power adequate for the largest needs at rates that compare favorably with the lowest in the nation; a wide range of mill sites available at low figures; moderate building costs; equable climate twelve months of the year—and a valuable reserve of intelligent, efficient Anglo-Saxon labor.

Those are the factors that have put more new spindles in Georgia mills during the past few years than in any other Southern state. And those factors will not change.

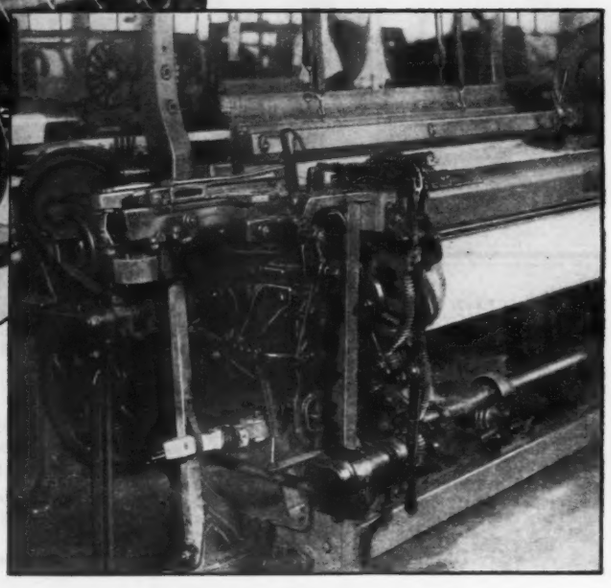
* * *

Our engineering staff is ready at all times to confer with your representatives and supply you with all the data you may require. We have made thorough location surveys of Georgia and will furnish detailed information on request to Industrial Department, Georgia Power Company, Atlanta, or to Commonwealth and Southern Corporation, 20 Pine Street, New York.

GEORGIA POWER COMPANY



Watt Meter Tests in Interlaken Mills Prove Power Savings with Gargoyle Lubricants



Friction load on 3856 Spindles lowered 23.75%

THAT Gargoyle Lubricants for textile mills do lower power costs was clearly shown in a recent series of watt meter tests at Interlaken Mills. The tests, run over a six months' period, were made on all principal groups of machines while the mill was running on a very even production schedule.

The substantial power savings shown here give an indication of what Gargoyle Lubricants can do toward lowering costs in your mill.

Average % Power Saving made with New Line of Gargoyle Lubricants

	START	AVERAGE	PEAK	FRICTION
Pickers	9.18	12.48	10.53	68.10
Cards	18.9	16.75	13.95	31.90
Speeders (1-3)	7.98	9.83	9.1	33.3
4-Frame Spinning	2.96	5.15	0.0	14.9
Weave (253)	4.68	3.45	3.33	14.0
Weave (295)	9.18	8.12	12.76	50.0

As a further indication of savings made, the starting load as taken from the switchboard showed 1280 k.w. with the old oils in service, 1180 k.w. with Gargoyle Lubricants thoroughly worked in and 1280 k.w. with the old oils reinstated. Power readings on the switchboard dropped from a weekly consumption of 61,500 k.w.h. with the old oils in service to 55,193 k.w.h. when the new oils were completely worked in and then back to 63,200 k.w.h. when the old oils were put back into service. (Only 60% of mill equipment was included in the tests. Production was uniform throughout.)

Average Running Load on oiled looms lowered 9.13%

Actual operating tests in leading mills of every type prove that Gargoyle Lubricants for textile machinery are showing substantial dollar-and-cents savings in the form of lower power costs and the elimination of oil spots. It will be a good business move on your part to ask a representative to show you lower cost records made with Gargoyle Lubricants on equipment like your own.

GARGOYLE

Lubricating Oils

SOCONY-VACUUM

CORPORATION

MERGER OF STANDARD OIL COMPANY OF NEW YORK AND VACUUM OIL COMPANY

Now increased THREE-FOLD* *in these NEW Compounds!*

ALIPHATIC ESTER SULPHATE and GLYCERYL SULPHATES

This vital factor . . . organically combined SO_3 . . . gives sulphonated compounds Stability—Penetration—and Solubility. It provides resistance to heat—to acids—to alkalies, etc.

Therefore, the higher the SO_3 content, the higher the degree of these mill features you obtain.

New ONYX compounds practically at SO_3 peak!

The new ONYX series maintains a Uniform SO_3 content that practically reaches the point of total possible sulphonation . . . or *three times the average SO_3 content in oils on the market to-day. And most important—*the series is priced within reach of every mill!*

There can be no breaking in use—they resist boiling in organic acids and salts—are unaffected by hard or calcerous water. Highly Soluble, they mix with any formulae, leaving no undissolved particles to form oil spots.

Penetration is thorough. Washing out is easy, quick and complete. Smaller amounts are required to do better and quicker work.

Write for sample and directions, stating operation and fabric. Use coupon, if possible, for convenience.

ONYX OIL & CHEMICAL CO.
JERSEY CITY, N. J.

Specialists on Finishing Materials.

Midwestern Repr. MAHER COLOR & CHEMICAL CO., INC., Chicago, Ill.

THE NEW SERIES!

ALIPHATIC ESTER SULPHATE

Highly effective as a Penetrating and Wetting out agent in the Dyebath; for Kierboil, Finishing, Throwing, Printing and Vat Dyes. So stable, will not break under *any* conditions of use. Resists boiling in organic acids and salts; unaffected by hard or calcerous water. Carries dye into tiniest fibre and produces clear, even-dyed fabric in record time. Effects important savings in amount of dyestuffs needed.

OLEO GLYCERYL SULPHATE

Used for Softening, Finishing and Lubricating Silks, Rayon or Mixed Goods in all processes. For Dyeing and Finishing. For Kierboiling; for boiling off Hosiery; for Silk Throwing; as a base for emulsions. In boiling off and kierboiling will not break under hard or calcerous water. Prevents oil spots. Boil off is more penetrating and cleansing.

STEARO GLYCERYL SULPHATE

Recommended for Softening and Finishing of Cotton, Rayon, Silks, etc. Produces softer feel. Gives a *penetrated* finish not merely surface. Stable with organic salts and hard water; no danger of breaking. Positively no odor in storage. Beautiful effects obtained.

PALMITO GLYCERYL SULPHATE

Very effective for scouring Wool and Boiling off Cotton and Rayon. Deeply penetrative, removing every trace of emulsions and oils. Wool becomes fluffier. Even shades assured in dyebath.

Mail this coupon

ONYX OIL & CHEMICAL CO.
15 Exchange Place, Jersey City, N. J.

Gentlemen:

Send sample and directions for (*State operation and fabric*) _____

_____

_____

Also booklet and prices. No obligation.

C-4

Firm Name _____

Individual _____

Address _____

City _____ *State* _____

Vol. 97 **COTTON** No. 4

April, 1933

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director

ROBERT W. PHILIP, Editor

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"AN ALLIANCE WITH INDUSTRIAL"

In business, too, these days there must be an *interlocking* of interests to complete the merchandising picture. ◆◆ *An alliance with Industrial* means getting the most out of your market potentials. In character of product, in research and market study, in sales helps and cooperation, we are working closely with our customers today. Many have been generous enough to attribute some of their progress to this alliance. We would like to discuss your problems with you.

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General Offices: 9801 Walford Avenue, Cleveland, Ohio
Plants: Cleveland, Ohio; Covington, Virginia

Exclusive Producers of

PREMIER RAYON, SPUN-LO and DUL-TONE
YARNS AND KNITTED FABRICS

Vol. 97
No. 4

COTTON

April,
1933

The Coming Conventions

Knitting Exhibition and Meeting at Philadelphia, April 24th to 28th

THE 1933 Knitting Arts Exhibition will be staged at the Commercial Museum, Philadelphia, April 24th to 28th inclusive. This is the 29th consecutive annual knitting show, which has become recognized by the knitting industries as the annual occasion at which to examine new products, new equipment, improvements, attachments, etc. A manufacturer in the knitting industry cannot well keep abreast of progress and development unless he attends this important exhibit.

In addition to the exhibit values, the week of the Exhibition has become increasingly important as it serves to bring together the executives of the knitting industry to the annual meeting of the National Association of Hosiery and Underwear Manufacturers, under whose auspices the Exhibition is held. This meeting will be held on Thursday, April 27th, at the Commercial Museum. There will be, in addition to the annual reports of the officers, a report from the silk committee appointed a year ago. The results of a canvass of the industry on alternative methods of restricting the use of equipment and thus bringing some balance between production and demand will be reported, as well as the attitude of the industry on legislation to limit the weekly and daily working hours of operatives. Following the business session, the annual luncheon will be held. This function has developed into a pleasurable occasion at which exhibitors and present and prospective customers entertain and are entertained. Last year the luncheon was given in a private room with improved acoustics and surroundings, and the same will be repeated this year.

Some branches of the industry will doubtless have branch conferences during the week. This is already indicated as regards the manufacturers of ribbed goods and it will doubtless be true of some of the other groups.

The restaurant facilities this year will be much improved. Arrangements have been made for the use of the splendidly equipped and attractive restaurant in the new Auditorium building immediately adjoining the exhibit hall. The prices of the restaurant will be popular without sacrifice in the quality of food.

With the unusual conditions which have surrounded the hosiery and underwear markets since last fall and which have brought up new problems, and the feeling that with the passing of the bank holiday and other moves of the national administration, there is a perceptible desire on the part of the manufacturers to contact with their fellow manufacturers for the purpose of interchanging views and policies. The best opportunity for such contact will be afforded by the week of the Exhibition, and a large and representative attendance is assured. Space reservations indicate that the coming Exhibition will be on a par with that of last year. Practically all former exhibitors have contracted for space, and, in addition, there will be several new exhibitors.

American Cotton Manufacturers at Pinehurst, N. C., April 28th and 29th

ON Friday and Saturday, April 28th and 29th, at the Carolina Hotel, in Pinehurst, N. C., the American Cotton Manufacturers Association will hold its 37th annual convention. This convention will be preceded by a board of government meeting on the evening of the 27th, at the same hotel. The board of government will consider a resume of the executive affairs of the association; also any resolutions to be presented to the association.

The convention proper will open in the convention hall, at 10 o'clock Friday morning, at which the address of President B. B. Gossett will be made. This is anticipated with a great deal of interest, because during the current year many vital problems have presented themselves and the methods of handling them will probably be indicated in this address. The fact that Mr. Gossett is one of the influential textile manufacturers in the South and is keenly alert to social and civic and manufacturing problems, is indicative of an interesting and constructive address.

W. D. Anderson, president of the Bibb Manufacturing Company, Macon, Ga., will discuss at the morning session some of the outstanding industrial problems outside of the industry. It is well known that Mr. Anderson has been very active in legislative matters, both state and national, and he is president of the Print Cloth Group, which is the largest and most important group in the textile industry. "Col. W. D.", as he is affectionately known among his great group of friends, is perhaps the most forceful and outstanding speaker in the industry, and ranks with the peers in any oratorical group.

Professor A. S. Dewing, head of the School of Finance of Harvard University, will speak, probably on some financial question. While the title of his

address has not been announced, it is known that his broad experience as a scholar and his contact with important textile industrialists will enable him to fit his address very timely and pertinently to the occasion.

There will be no formal afternoon session on Friday, the 28th. This time has been reserved for committee meetings, social relaxation, golf and other diversions.

The banquet will be held on Friday evening, the 28th. It will be presided over by President Gossett, who will introduce the visiting guests, following which Hon. Josiah W. Bailey, U. S. Senator from North Carolina, will address the body on some important national subject.

Following the precedent established last year, the ladies will be expected to attend the banquet, which will be followed by dancing in the hotel ball room.

On Saturday morning, the 29th, at 10 o'clock, the members will reconvene for the purpose of hearing the various reports, and the election of officers and the presentation of the president's medal.

This final meeting will be perhaps one of the most interesting sessions of the entire convention. The committees have been exceedingly active and their reports will be illuminating.

A large attendance is expected not only from the South, but from New England and New York, and already reservations have been made by manufacturers, bankers, converters and others.

Plans for Third National Cotton Week, May 15th to 20th

THE third annual observance of National Cotton Week will be held this year during the week of May 15th to May 20th inclusive. This event, held under the auspices of The Cotton-Textile Institute, has become an established merchandising event on the trade calendar for spring. The Institute reports that trade response to advance information indicates that the 1933 observance of National Cotton Week will be of wider scope than in previous years. Co-operation in 1932 was given by upwards of 25,000 retail establishments, including practically all of the important chain organizations and mail order houses. Newspaper advertising and other promotional aids such as window displays were all widely used by retailers and distributors of cotton goods with gratifying results. Generous space given by newspapers in their news and editorial columns indicated the nation-wide news interest in the event. Besides preparing news bulletins and feature articles, the Institute distributed 473,000 stickers for letters and 92,000 National Cotton Week posters. Some 5,000 "broadsides" of advertising and display suggestions were also issued to merchants by the Institute.

This year's observance will be broadened by the special cooperation of wholesale dry goods houses in enlisting the support of thousands of their customers representing small retail establishments not directly reached by the Institute's promotional activities in previous years.

Another factor contributing to even greater public interest in this year's observance is the thrift-in-fashion appeal of cottons. The growing recognition of the versatility of cotton fabrics and their improved styling have given them a more important place than ever in the world of fashion. From the standpoint of cost, they present economies enabling women of all income-levels to keep abreast of the mode within the limits of curtailed personal budgets, the Institute points out.

Fashion trends reviving style phases of two generations ago are also favorable to cottons. Voluminous sleeves and long dresses are "in" again, requiring increased yardage per garment which will turn the cost factor to the advantage of cottons. The mode dictates a season of soft, frilly clothes with emphasis on such sheer fabrics as voiles, dimities, and lawns. Early retail promotions are stressing cottons as leading the way to summer smartness in a mode that the new fabrics make beautiful as well as practical.

The urge for thrift has led to more intensive promotion of paper pattern business. Home sewing is being greatly stimulated and the return of old fashions will have a dressmaking appeal to women who did their own sewing when the present styles were the mode in bygone days. Fashion has turned to cottons, but instead of being the description of a limited number of familiar staples, the term "cottons" now includes a family of new, ingenious and appealing fabrics that may be counted upon to stimulate wide public interest in National Cotton Week.

National Cotton Week as an important factor in contributing to general industrial revival is stressed by George A. Sloan, president of The Cotton-Textile Institute. "Coincident with a more general revival of confidence," Mr. Sloan points out, "alert merchants with an eye to action, hail National Cotton Week as a constructive influence of special significance this year. The increased consumption of cotton, resulting from the promotional stimulus of the Week, will be reflected directly in the increased purchasing power of 12,000,000 people who are dependent for their livelihood on the growth, manufacture, and distribution of cotton. Improvement in their ability to consume naturally will have far-reaching effects on other industries.

"This year there are several factors that make for an intensified selling drive on cottons. There are present signs of rising market values which always

(Continued on page 87)

The Problem of State, County and Local Taxation

By Dunhill Marsden

LAST month we presented the general picture of tax burden; here Mr. Marsden discusses a phase often overlooked—that of state and local government expense, which takes two-thirds of your tax dollar. These discussions are presented because textile plants and men are chief among the taxpayers in their respective communities, with much at stake in the continued wasting and reckless duplication going on in governmental administration . . . . . .

IN 1929, the gross expenditure of Federal Government was $3,932,000,000; all state government was $2,001,000,000; all local government was $7,126,000,000—or a total government expenditure of $13,059,000,000.

In 1913, the gross expenditure of Federal Government was $692,000,000; all state government was $383,000,000; all local government was $1,844,000,000—or a total government expenditure of $2,919,000,000.

In 1923, the gross expenditure of Federal Government was $3,885,000,000; all state government was $1,242,000,000; all local government was $5,136,000,000; or a total government expenditure of $10,263,000,000.

In a previous article we called attention to the mounting expenses of Federal Government, and although this seemed staggering, it is rather mild when we pull out the contrast in the rapidly rising cost of state and local government.

In 1913, state and local government cost $2,227,000,000; in 1923, this figure rose to $6,378,000,000; in 1929, it went to $9,127,000,000—and while we have no figures available for 1932 we have reasons to believe that the increase has not been checked.

When 1930 tax dollars are converted into 1913 tax dollars, the National Industrial Conference Board says the amount of expenditures is increased by 16.1 per cent over the preceding year.

Thus it can be seen that the Federal Government takes about one-third of the tax dollar, while state and local government consumes about two-thirds of it.

The North Carolina Plan

In 1929, the highway construction and maintenance took 36 per cent of net or 33 per cent of gross state and local expenditures; education took 29.5 per cent of net or 27.4 per cent of gross; while social welfare took 13.6 per cent of net, or 12.7 per cent of gross expenditures. These three major expenditures amount to 79.1 per cent of the net or 73.1 per cent of gross state and local expense.

O. Max Gardner, while governor of North Carolina, stated that "in the quick march of industrial, educational and social progress of the last two decades our state governments have experienced some severe growing pains. A check-up shows how easy it has been to scatter organizations here and there, to distribute powers and responsibilities among increasing boards and commissions, to create numerous agencies for paternal supervision and control, and thus to increase the cost of government far beyond the benefits it actually returns to the citizens whose welfare is its supreme reason for existence."

Therefore, when he became Governor and saw the high roll of ever-increasing taxes, he, with a serious minded legislature, set out to determine what the essentials of state government should be and these are their findings: The protection of life and property; the administration of justice; the encouragement of education and public welfare; and the guaranteeing of the blessing of liberty, at a cost which could reasonably be borne by all according to each citizen's ability to pay.

Four important objectives were set up to accomplish these governmental ideals: To simplify and clarify the relation between the state and its governmental sub-divisions; to increase efficiency through improved organization and administration; to readjust the tax burden; to reduce the cost of government.

In attempting to make practical accomplishment of these objectives at least three re-organizations were effected. The first was the re-organization of the highway system with centralized control in the state authority, the idea being that a state road construction plan of purposefulness could be effected rather than the "hit and miss" plan provided in the old local or district system. It is not necessary to amplify advantages of this action because they are so evident.

The second plan was the co-ordination and consolation of the state's higher educational institutions and final assumption by the state of the control and administration of all of the public schools of the state with the guarantee of a minimum of seven-month term.

The third, and perhaps the most far-reaching step, was the creation of a local government commission. The act creating this commission abolished the county government advisory commission and the state sinking fund commission, and placed their work

under this new commission of nine members, which will have not only advisory but supervisory authority over the financial affairs of every unit of government, county and municipal, in thestate.

Such a step was badly needed because seventy-five cents of every dollar of the hundred million collected from the taxpayers was spent by and through counties, districts, towns and cities, and these various units were plunging the taxpayers into a burden of public debt beyond their capacity to pay and closely approaching the danger point.

"The new plan centralizes control of all borrowing power in the hands of the commission; it takes away from the local units the power to endanger further the interests of the taxpayers. Bonds cannot be floated on any anticipated revenues without authorization. Each local government must present an annual budget and live within the revenue it provides. Current expenses must be met out of current revenue. Local government must meet their obligations promptly. Securities in which public funds are invested must meet the approval of the commission."

Too Many Tax-Levying Bodies.

Drastic this provision may seem and novel in its initiative, however, its reasonableness is understood when a study is made of the over-lapping of taxing jurisdictions. *The Index* recently issued, carried an article, indicating that in the United States there are some 500,000 separate taxing bodies. In New York alone there are more than 11,000 such bodies, including 62 counties, 60 cities, 932 towns, 507 villages, 960,000 school districts.

In Cook County, Illinois, there are 415 tax levying boards, in Wayne County, Michigan, 145 separate taxing authorities. It is, therefore, reasonable to assume that similar situations exist in all other states, where in addition to counties, towns and townships there are larger numbers of taxing districts for school, road, sanitary, drainage, levee, bridge and other purposes.

It is very imperative that each state shall set up a commission similar to that of North Carolina, wherein all of these various taxing functions can be co-ordinated and correlated and properly directed in their demands upon the taxpayers.

County Consolidations Are Necessary.

Another relief from state and county taxes that can be sought in this day of good roads and rapid transit is county consolidation. In the old days of bad roads and slow transportation there was an ever-increasing demand upon state legislatures to sub-divide the larger counties and great rivalries and grafts existed among towns and politicians for the honor of locating, or possessing a county site. Perhaps one of the most wasteful items of local government today is the county organization, which, in many instances, functions alongside the elaborate city machinery. This county consolidation is moving into two directions.

The first is the consolidation of the county and city government by which more efficient and less expensive administration is secured.

Another movement is in the consolidating of many of the smaller and weaker counties into large units, which can easily be done today because of our transportation system.

A survey of the state tax commission of Tennessee recently reported that county government cost 19 times more than state administration. Therefore, there is a movement in Tennessee to consolidate the 95 counties into 50.

New York and North Carolina have also given serious consideration to county consolidations. It has even been suggested that in North Carolina the 100 counties could be effectively consolidated into 10 areas whose administration would be much more efficient and much less expensive.

The Part of the Taxpayer.

During the last several years since business has been depressed there has been much controversy concerning our national tariff policy, but few people have stopped to think that state and local taxes are just as much a tariff barrier in the domestic market as a national tariff is in a foreign market. Excessive taxes prevent growth because new organizations are seeking locations least affected by heavy taxes and those organizations already existing in such areas are retarded from their normal growth by such burdens. Wages, purchasing power, employment and the price of commodities are seriously affected and as stated above, competition in other local markets is more severe because of the tax situation.

From these statements it is therefore obligatory that the state, county and local units must be properly surveyed and properly coordinated. The tax burden must be reduced and the greatest expenditures lie within this area.

The committee on state and local taxes of the Chamber of Commerce of the United States, last year, set up 16 objectives for the consideration of all taxpayers' groups. These include examination of governmental functions with a view to elimination or curtailment of activities which can be dispensed with; reduction in all possible items of expenditures; sound budgetary procedure; improved administration; reduction of overlapping local units by consolidation; adoption of efficient methods of collecting delinquent taxes; synchronizing the tax collection and spending years of governmental units, in order to assist in reducing interest payments upon short-term loans floated in advance of tax collections; long-time planning of the capital financing of public improvements; and closer cooperation between governmental units and relief agencies.

There have been, of course, some efforts made and some results accomplished in state and local governmental units but the great tax paying public feels that the surface has hardly been scratched, that the taxpayer is not getting full value for his dollar, that the levying of new and heavy taxes before instituting all possible economies is an unwise step for any governing body to take. They feel that incomes of all individuals and business organizations have been seriously reduced and that governing bodies must follow the same procedure.

Report of Atlanta Discussion on Carding and Spinning

Reported by Robert W. Philip

THIS is the only detailed report made of the March meeting of the Textile Operating Executives of Georgia. It gives the discussion on oil spraying, one-process picking, fiber roving bobbins, variable speed for spinning, cork rolls in carding and spinning —and other interesting ideas and tests . .

PRACTICAL, round-table discussion, covering a list of interesting carding and spinning subjects, constituted the program of the spring meeting of the Textile Operating Executives of Georgia, which was held at the Georgia School of Technology, Atlanta, Ga., on Friday, March 16th. The meeting was well attended, with superintendents and overseers of many of the Georgia mills, and visiting mill men from neighboring states, present. This organization meets twice a year—discussing carding and spinning at the March meeting, and slashing, weaving and mechanical topics each September.

At the meeting last month, in the absence of Albert Lehmann, Jr., general chairman, George S. Elliott, superintendent and manager, Pacolet Mfg. Co., No. 4, New Holland, Ga., vice general chairman of the organization, presided. The meeting was opened Friday morning, with a helpful inspirational address on "Working Together for the Common Good", delivered by Dr. Herman L. Turner, pastor of the Covenant Presbyterian Church, of Atlanta.

At a brief business session, V. J. Thompson, superintendent, Callaway Mills, Manchester, Ga., was elected as a member of the executive committee for 2½ years, succeeding A. E. Massey, whose term expired at this meeting. There are five members of the committee, each with a term of 2½ years, with one term expiring every six months.

After Dr. Turner's address, Mr. Elliott turned the meeting over to A. E. Massey, superintendent, Exposition Cotton Mills, Atlanta, who led the carding discussion which occupied the remainder of the morning session.

Experiences with Spraying Oil.

The discussions followed a questionnaire of topics previously distributed to the mill men, each question having been assigned to several men. The first question brought up was, "Give your experience with spraying oil on cotton at the pickers, particularly with regard to which you find to be the best point of application in the machine."

The first answer was from John Klinck, superintendent, Sibley Mfg. Co., Augusta, Ga., and was read in his absence: "All of our experience with oil spray has been experimental. Some time ago we had put in an installation which applied the oil to the cotton right behind the feed roll to the last beater of a Saco-Lowell continuous picker. This was a carding or Kirschner beater. One half of one per cent oil was put in with this arrangement, but it was discarded because it gummed up the grid bars in the picker, and the card cylinders.

"The oil people then said that this was the wrong arrangement, and changed it to the second beater which was a two-blade beater. The spray was put in just underneath the feed roll, above the first grid bar. The oil was set to one quarter of one per cent.

"We have run this arrangement off and on for several weeks. We have not made any sort of tests for breaking strength or any other tests. By just watching the work run through the mill we have arrived at the following opinions which we do not feel are conclusive, or worth much:

"a. We do not see that the oil does any harm, but cannot see that it does any good so far as the running of the work is affected.

"b. We believe that we have less fly in the card room, but think it is a matter of opinion as to whether this should be carried into the work, or whether it is worth the cost of the oil to save it.

"c. We think the card wire presents a more glossy appearance while we run the oil. We are wondering whether the oil will keep the wire from rusting, and whether, in doing so it will ruin the foundation of the clothing.

"d. We do not feel worth considering the argument that the cost of the oil is offset by the cotton that it saves; that the oil is cheaper than the cotton. We cannot see any benefit in substituting oil for cotton in our goods.

"e. We think that where cotton has been dyed raw stock and dried too much so as to have static electricity in it, or where the dye used makes the cotton harsh so that it is difficult to card and spin, this oil is of great benefit.

"We do not feel competent to say at which point the oil should be applied."

George S. Elliott was then called upon and replied, "We have been playing with oil spraying quite some time. We started when they had the reciprocating pumps and went from that to the more modern one pressure pump, and then we later tried some of the new idea. We seem to like our second step better than the last. It seems to distribute the oil better." Mr. Massey asked him where the oil was applied with the different methods and Mr. Elliott replied, "The first was on the breaker hoppers, with individual spray into each hopper. Then we put it in after the cotton leaves the Centrif-Air machine before reaching the

picker room, and that is the one we like the best."

"Have you tried applying it on the picker?" asked the chairman.

"The last experiment we made was putting it on the top of the lap just before it reaches the feed roll," replied Mr. Elliott, "and that did not seem to be very satisfactory." He added that this application had been tried only at the finisher beater, and further pointed out that he uses the oil only on what he calls his low-grade osnaburg mix; that he has not experimented with the oil on "white" cotton and does not use it on that stock.

R. D. Harvey, assistant agent, Pepperell Mfg. Co., Lindale, Ga., said he had been using oil off and on for six or seven years, and that he finds it does good on raw stock dyed goods. He said it is applied in the conveyor pipe and called on George Glenn, his overseer of carding, for further discussion. Mr. Glenn said, "We have had one unit in on a converted one-process picker. Our experience has been limited so

ALBERT LEHMANN, Jr., superintendent, Dixie Cotton Mills, LaGrange, Ga., who is general chairman of the Textile Operating Executives . . .

far, as we cannot find a suitable place to apply it. We first tried it on the lap, just in front of the feed rolls on the finisher and it would gum up the feed rolls and then in the hopper, and it gummed up the picker and cut the cleaning down 50 per cent." Asked as to the percentage he is applying, he stated that the firm installing the equipment had recommended .8 per cent, but that he has not been able to apply any percentage successfully.

Douglas Williamson, superintendent, American Net & Twine Co., Blue Mountain, Ala., asked if anyone had experienced trouble in the spinning room when using oil on the cotton. W. D. Massey, superintendent, Peerless Cotton Mills, Thomaston, Ga., reported this trouble which had been eliminated by reducing the amount of oil applied. He now uses ¼ of one per cent oil, and applies it just behind the feed roll on the top of the lap.

C. W. Carter, overseer of spinning, American Net & Twine Co., reported that the oil "reduced the life of my travelers 90 per cent", by loading them up and causing them to come off. This experience, however, he explained in answer to questions, occurred some six or seven years ago with the original method of applying the oil in the hopper. He has not used any of the recently developed methods of application.

V. E. McDowell, overseer of carding, Eagle & Phenix Mills, reported that, "we are at a young stage of experimenting. We have had it in only a few weeks and have not made any particular tests. We apply it under the feed roll on the intermediate picker, a two-blade beater, and we get a good distribution of the oil and it has improved the condition of our laps, but outside of this observation I do not know of anything else." He applies .35 per cent, using the oil on white cotton; he added that he had also tried the oil on some colored work that had been giving trouble and that the oil improved the running of this cotton.

A. M. Asbelle, of the Harmony Grove Mills, Commerce, Ga., reported that this mill had installed a unit applied in the trunk line, and had started off with ½ of one per cent and had finally reduced the amount and type of oil until they are now using a spindle oil for the purpose. He said the oil assists in cleaning out leaf, fly and motes, and that it makes the conditions in the picker room and card room better for the operatives. As to the spinning room, he said, "we have come to the point where the slight lubrication given by the oil in the cotton is of benefit to our rings. Our experience has been very satisfactory and we would not want to be without it." He replied to a question by saying that the oil is applied just as the cotton comes out of the vertical opener into the conveyor line.

Blowing or Sucking Cotton.

"Where the opener room is located some distance from the picker room, is it better to blow or suck the cotton from the opener room to the picker room?" was the next question proposed. There was a brief discussion, practically all of the mills using the method of sucking the cotton to the picker room by means of condensers and fans. E. H. Rogers, agent, Fulton Bag & Cotton Mills, Atlanta, reported that at another mill he had used a combination of blowing and sucking. Traveling over a great distance, he said, it is better to blow the cotton, as it is easier to handle and there is not the trouble with choked condensers and pipes, and you can carry it better in wet weather. He pointed out that a booster air fan could be used in the line, but added that "you usually have a screen inserted in the storage bin into which the cotton is placed, and the fire hazard is increased. With the other method using a condenser you can confine a fire to the dust pit." He said that bronze blades were used in the fans that blew the cotton. R. D. Harvey said he agreed with Mr. Rogers as to there being less fire hazard in sucking the cotton, but that an insurance inspector had told him that the fire hazard was less in blowing the cotton, and that is why he had brought the question up.

Lap Loss on One-Process Picking—The "Hunting Tooth" Knock-Off Gear.

Mr. Massey next brought up the question: "On one-process picking, what is your loss in laps? State the weight of your lap, and the tolerance you allow from standard. Also, state whether your one-process pickers are of the converted type, that is, changed to one-process from two or three-process, or whether they are original model one-process pickers? (*b*) Do you have the modern type of knock-off motion on your pickers, with the hunting-tooth gear? If so, what is your experience with it?"

The answer of Mr. Klinck, which was read, fol-

lows: "Our loss in laps is about 1 per cent. The weight of the lap is 13.5 ounces per yard, 48 yards. This figures 40.5 pounds for the lap. Our tolerance is ½-pound each way. Our one-process pickers are original model one-process. We have the hunting-tooth gear and find no fault with it."

C. K. Cobb, assistant superintendent, Canton (Ga.) Cotton Mills, next reported that, "Before changing over our pickers to one-process our rejects were about 8 or 9 per cent and since changing they will run about 3 to 4 per cent. A test over a week's time showed 90 laps lost out of 3,000 run, which is 3 per cent. Our weight is a 50-pound lap, with a ½-pound allowance each way. We do not have the hunting-tooth knock-off." In changing over, Mr. Cobb explained, they had six breakers and ten finishers, and set one of the finishers aside and run the rejected laps back through it.

Henry Robinson, assistant superintendent, Columbus (Ga.) Mfg. Co., reported a 10-hour test on a converted one-process job, which showed 3.108 per cent rejects, running a 41-pound lap with ½-pound tolerance each way. He does not have the hunting-tooth knock-off.

L. B. Colbert, overseer carding, The Trion (Ga.) Company, reported 3.6 per cent rejects on a converted type picker, with the hunting-tooth gear knock-off motion, making a 49-pound lap with ½-pound tolerance each way.

On an installation of original model one-process pickers, as well as a converted type line, J. C. Edwards, superintendent, Martha Mills, Thomaston, Ga., reported 138 set-backs out of 13,800 laps run, or 1 per cent, most of these coming immediately after stopping-off periods. He makes a 41½-pound net weight lap, with ½-pound allowance each way. He said he has the hunting-tooth gear knock-off, "and we do not think there is anything better."

Frank H. Cooper, assistant superintendent, Fulton Bag & Cotton Mills, said, "we have original model one-process pickers, two beaters, and we lose one per cent of our laps," pointing out that even this small loss comes almost entirely in changing from one grade of cotton to another. "We change a line of pickers and sometimes lose a lap, but after it is regulated we rarely lose one," he said. They make a 42-pound lap with ½-pound tolerance each way, and have the hunting-tooth type of knock-off.

"On converted Kitson one-process pickers, our loss of laps is between 1 and 1½ per cent," reported D. D. Quillian, superintendent, Athens (Ga.) Mfg. Co. "We have the hunting-tooth gear knock-off motion and it has never given us any trouble, but does give us a great deal of satisfaction. We have lost fewer laps with the hunting-tooth gear and we know that the same length is delivered by the calender rolls for each lap."

J. M. Glass, overseer of carding, Shawmut Mill, reported a lap loss of 6 to 8 per cent, running three grades of cotton, without the hunting-tooth knock-off. A. E. Massey brought out that his own greatest loss in laps, on original model one-process pickers equipped with hunting tooth gears, is from changing from one grade of cotton to another. Edwin Chandler, his overseer of carding, reported about 3 per cent rejects.

By regulating the laps according to the moisture content, on converted pickers, R. S. Steele, and J. M. Willis, superintendent and overseer of carding, LaFayette (Ga.) Cotton Mills, reported a 5 weeks test of 3,304 laps with only two lost laps.

Mr. Elliott stated that, "it looks as if the machines equipped with the hunting-tooth gear seem to run between 1 and 2 per cent rejects and not having them the others seem to run 3 to 5 per cent. It looks like there is considerable value to the hunting-tooth gear."

Mr. Williamson asked whether anyone with the hunting-tooth gear had rolled out the laps and measured them.

George Glenn reported that while he has the old type knock-off motion, on 25 finishers, he found a variation of 22 inches in lap length on 50-yard laps from these finishers. He explained that he takes two picker screens, with a shaft through them, and puts them on horses and runs the lap between, turning the screens by hand and counting the revolutions of the screens.

G. S. ELLIOTT, superintendent of Pacolet Mfg. Co., New Holland, Ga., vice general chairman, who presided at the meeting . . . . . .

He said this is the only practical way he has found of measuring the laps; that unrolling them on the floor is not satisfactory.

The hunting-tooth gear will deliver a certain number of yards measured by the calender rolls, Mr. Quillian brought out, but on dry days and wet days there will be a difference in the length of the lap due to stretching. He said he had tested the length and found two yards difference in lap length, on account of the expansion of the lap. Mr. Rogers asked if there was any difference in the outside and inside layers of the lap. R. A. Butler, technical superintendent, Martha Mill, reporting from tests made on a specially designed machine for testing lap length, that the first yard ran 13½ ounces and the last yard 12½ ounces; that as you pull on the outside you get a stretch which causes light yarn; that the outside yard showed ½-ounce light. He said after you get past the first layer there is not this much variation, and "I came to the conclusion that there was no value in throwing away the first yard but there is in throwing away the end on the lap pin because of shrinkage." Mr. Elliott asked if the length of time the lap runs after the knock-off motion operates does not have some effect on stretching, and Mr. Butler replied, "Decidedly; we tried that and let a lap revolve for 15 revolutions after the machine knocked off, and it stretched greatly. The releasing motion helps that greatly." Mr. Glenn brought out that the diameter of the lap has an effect on the stretching; that theoretically the lap is driven from

the surface speed of the calender roll, and that the larger the lap gets, the less revolutions the lap will make.

No Experience with Needle Point Grinder.

The next question was, "Do you have the needle point grinder for grinding card clothing; if so, what are your experience and results?" It appeared that there are no installations of this machine, which is of English manufacture, in this country—the nearest being one in a mill in Canada. The system was described as including a disc shape grinding roll which, instead of grinding the top of the wire, grinds the sides of the fillet wire. Mr. Massey and Guy L. Melchor, Sr., described this effect as being more similar to the old-time "plough-grinding" of wire, instead of an actual "needle-point", the theory being that as the wire wears down the wire gets wider, and this side-grinding restores the point. In theory, several of those present said, if it were possible even to secure an actual needle point on the wire that true carding could not be produced; Mr. Massey said that card wire examined under a microscope shows up in reality a "burr" point which "looks like a brier patch" and that that is what produces the carding effect. He declared that "an Englishman once told me that the American method of grinding reminded him of a man who would try to sharpen an ax by fastening the ax to the spindle of the grinding wheel and then turning them together, meaning that we do not have enough difference in the speeds of the surface being ground and the grinding surface." Mr. Massey declared that in his mind there is a decided advantage in slowing down the cylinder and doffer, particularly where card clothing is in bad shape. V. J. Thompson agreed on this, under conditions of clothing in bad shape, with high and low places.

A question was asked whether a condition of uneven wire could be caused from the surface of the cylinder being uneven. None of those present seemed to feel that this could be so, that the trouble came either from puckered fillet, bad foundation, or worn main shaft bearings.

The Continuous Card Stripper.

Experiences with the continuous card stripper were asked for in the next question, which called for information as to how often the needles in these strippers were replaced. V. J. Thompson reported that he has 16 cards equipped with the strippers, which have been on for four years, and that he has replaced only two sets. Mr. Rogers said he has a couple of these strippers and finds that the needles last about two years. They work through and break off, he said. Mr. Thompson said his trouble came at first when, in grinding, the grinder failed to turn the strippers back to where the needles would not be hit. R. D. Harvey, who has several of these strippers, reported that the needles last one year, according to a test. Harry H. Purvis, superintendent, Chicopee Mfg. Corp., said they have 20 cards equipped with continuous strippers and that at first they had to replace all of the teeth, running also into the difficulty of the grinders failing to move the needles away from the cylinder when grinding. But that now the metal used in the needles seems of a better quality. He said he cards 10 pounds an hour, and asked what the proper setting for the needles into the card clothing is, and 1/16-inch was given as the recommendation.

The chairman asked whether, for waste cards, the continuous card stripper could take the place of fancies. Mr. Rogers replied, "I think so; you will get better results because you will not nep the cotton as bad and because you have it behind instead of in front. If I were putting in waste cards I would take a chance on the continuous strippers over fancies."

Metallic and Straight Wire Clothing.

"Give your experience with straight wire and metallic card clothing," was the next question. Henry Robinson, assistant superintendent, Columbus Manufacturing Co., said, "We have 23 cards equipped with the metallic clothing; 11 of them have been running 3 years. We are getting mighty good results from them. We strip them out about once a week and do not grind them at all. We strip with the regular roller; we have never tried stripping these cards by vacuum. We set them the same as our other cards, and get less waste. The total waste on our regular cards is 4.49 per cent, and on those with metallic clothing, 3.31 per cent. We get as good work, and we are getting more production by not grinding, which we figure represents 72 pounds per card in 120 hours. We have not had any breaks on this clothing." Answering Mr. Butler, he said that the character of the flat strips is about the same as from regular clothing. He makes 26s warp from 7/8-inch cotton. He answered Mr. Massey by saying that there is more fly in subsequent processes, from the metallic clothing, but he had not determined just how many processes after the carding were necessary before this additional fly had been taken out.

Reporting on straight wire clothing, D. D. Quillian said that, "we have straight wire on 30 cards, and 84 other cards with regular clothing. We liked the straight wire clothing pretty well to start off with, but we have decided now that we cannot get quite as good settings. The wire turns back and we cannot set as close, and also the web is just a little fuzzy. It is a little harder to parallel the fibers."

S. W. Hempstead, of Martha Mill, reported that as the straight wire clothing gets older, the advantages seem to diminish; that the longer the clothing runs without stripping, the more difficult it is to strip; that the flats seem to load more.

Single Process 5-Roll Drawing.

E. H. Rogers and R. D. Harvey were asked to discuss the new single process 5-roll drawing frame, each having had an installation of this equipment in his mill for a short time. Mr. Harvey reported that they had about half as much variation, with this machine, as with their old drawing, on a product in which slubber roving was being made to make filling yarn. George Glenn, his overseer of carding, said, "We think it is a decided improvement. The labor saving effected with it, however, would depend on how fast you

were running your old drawing." Mr. Rogers stated, from his brief experience with the machine, that he has noted some improvement in the work, that the machine is much easier to clean; that there is not much difference in the labor cost with the same production.

Re-Collared Drawing Rolls.

"Has it been your experience that re-collared drawing rolls are satisfactory?" the next question, was answered in the affirmative, with the provision that the work be done by competent firms, using the proper methods and materials. T. J. Boynton, overseer of spinning, Manchester plant of Callaway Mills, said he has had rolls recollared and in operation for about two years, and that they are just about as good as new. He said these rolls were turned down and the collars shrunk on. J. C. Edwards said, "We have two frames with re-collared rolls; one of these jobs is especially nice, I think, because of the material used; the other, not so good." C. K. Cobb reported having ten frames done over, with very good results. W. D. Massey said he has 11 frames with re-collared rolls that are running satisfactorily after three years. It was brought out that, on day run, the approximate life of new drawing rolls is about 14 to 18 years, so that with a re-collared job made almost as good as new equipment, they should run satisfactorily for 12 to 14 years.

It was asked whether it would pay to put ball or roller bearings on the journals of drawing frame rolls, and it was agreed that the results would hardly justify the present expense of this application. J. C. Edwards suggested the application of impregnated wood bearings at this point.

Experiences with the Sliver Tester.

Experiences with the sliver tester, for testing card sliver, were next asked for. Henry Robinson said that as result of tests with their sliver tester they had been experimenting with the settings of the drawing rolls a little. R. A. Butler said he feels that the sliver tester is a valuable instrument; that in testing sliver from three sets of drawing frames—one old set with metallic rolls, another set of a later model, and some frames with cork rolls—he found that between the oldest frames and the cork-covered rolls, a wide difference in the amount of variation in the sliver. The old frames, he said, showed from 30 to 50 per cent variation, in 20-yard lengths, whereas the cork rolls showed only 18 to 20 per cent variation. He explained that the sliver tester afforded an accurate means of determining the inch-by-inch variation existing in sliver, this not being possible by merely weighing certain lengths of sliver. Mr. Rogers said he had seen sliver run through one of the testers the second time, and the results corresponded to the first test, showing the accuracy of the instrument. Mr. Butler pointed out an interesting fact that the tester had disclosed: that there is more variation in finisher drawing than in breaker drawing; and more in breaker drawing than in the card sliver. Mr. Elliott asked if there was any way to bring the drawing variation down; Mr. Butler pointed out that on the new 5-roll single process drawing, the charts he had seen at the Greenville show showed a low of around 15 per cent variation on it.

The next question was: "What are the settings on your drawing rolls? Give length of cotton and total draft on drawing, and weight of sliver. Do you set the finisher drawing the same as breaker drawing; if not, what difference, and why? Have you opened or closed your rolls in order to get your present setting; if so, what results?"

Drawing Roll Settings.

The answer of Mr. Klinck was read, as follows: "Our draw frame rollers are set as follows: Front to second, 1 7/16-inch; second to third, 1 8/16-inch; third to back, 1 10/16-inch. We run two lengths of staple, 7/8-inch and 15/16-inch. On account of the possibility of having to run either staple on any frame, we have them all set wide enough to take the longer cotton. Our front roll is 1⅜-inch. The card sliver is 55-grain. First drawing sliver, 62-grain; 5.32 draft. Second drawing sliver, 62-grain; 6.00 draft. This is a total draft of 31.92. The breaker and finishing drawing are set the same, and we have not changed settings lately."

This report from Walter Dillard, Jr., superintendent, Sibley Mfg. Co., Augusta, was read: "Our drawing rolls are set for: Front to second, 1 5/16-inch; second to third, 1 3/8-inch; third to back, 1 9/16-inch. We are on 7/8-inch to 15/16-inch Middling cotton, and make a 64-grain card sliver, a 66-grain breaker drawing sliver, and a 75-grain finisher drawing sliver, with a draft of 5.82 on breaker drawing, and 5.28 on finisher drawing. We use the same settings on each process of drawing. We determined these settings about three years ago when we had a little trouble in the spinning room with thick and thin places, and after experimenting for several weeks settled on this setting."

Mr. Massey commented that the character of the cotton used has a bearing upon the drawing frame settings.

Experience with Fiber Card Room Bobbins.

"Give your experience with fiber bobbins on fly frames as compared with wooden bobbins," the next question, brought some interesting information on this comparatively new development for the card room. The answer of Mr. Klinck stated: "We have been experimenting with fiber bobbins for about five years and have been buying them slowly during that time. We now have quite a number of them and like them very much. We find that they have several advantages over the wooden bobbin. They will not split. They have a metal guard in the butt which prevents them from wearing out at that point. The butt will not frazzle out like that of a wooden bobbin, and for that reason is cleaner. It will not accumulate dirty waste that will come off on other bobbins and in this way get into the work. We find the finish on these bobbins so hard that it will ruin a knife edge. For this reason there is practically no roving cut off these bobbins. We do not know whether this is the original finish from the factory that would be that hard. We have had all bobbins we bought painted red or green and this hard finish may be that paint. This paint is not quite as smooth as the usual varnish finish on wooden

bobbins. It is smooth enough to allow roving to be twisted off of the speeder bobbin in the spinning room, but at the same time the bobbin of roving can be wound softer on the fly frame because the roving will not slip over the end and tangle."

Most of these comments were confirmed by a verbal report from D. R. Senn, of the Sibley and Enterprise mills.

Harry J. Horn, superintendent, Walton Cotton Mills, Monroe, Ga., similarly reported good experience with fiber bobbins. He said, "they are the cleanest bobbins we ever had in the card room. We never have to clean them out. Moisture does not seem to affect them. They are slightly heavier than wooden bobbins, but not enough to make any material difference, except that you will never find any of these fiber bobbins jumping up on the spindle. Oil does not affect them." He added in response to a question from Mr. Rogers that he oils his spindles and bobbin gears as usual.

Waste in Picking and Carding, 7/8" Cotton.

The next question asked for percentages of waste, for each process in picking and carding, on 7/8-inch Middling cotton. One complete report, showing a total of .05451 per cent through pickers, and .0552 in the cards (based on lap weight), accompanies this report. W. E. Williams, of The Trion Company, reported a total of 11.04 per cent through the cards—3.44 per cent on cards, and 7.60 per cent through pickers. George S. Elliott reported a total of 7.60 per cent through the cards, not including burlap and ties.

Cork Rolls in the Card Room.

The subject of cork rolls in the card room was next brought up. One man reported that he has cork rolls throughout on the fly frames and likes them very much. He said that the replacement is practically nil except for re-buffing, that his have been in for three years and that he had re-buffed once. W. R. Beldon, Clark Thread Co., reported having used cork rolls in the card room for nine years.

"All of our card room is equipped with cork rolls," said J. C. Edwards, of Martha Mill. "We have set up a re-buffing period of six months of 144 hours per week operation. We take the speeders, say, and start in at No. 1 speeder and go over all the speeder rolls, and go through the rest of the fly frames in the same way. I mean the front rolls. The middle and back rolls have been running a year without re-buffing. We find we have to watch the cork rolls during the running period to take out any rolls that might have gotten bruised in any way, and we do not put a new roll in to replace these, but utilize a used roll. We do not have any trouble with the flutes filling up in the card room. We run a lower humidity with the cork rolls."

C. K. Cobb of Canton said they have had cork rolls in the card room for about a year, and that they re-buffed about six months ago. Harry H. Purvis of Chicopee reported that their entire card room has been equipped for about a year and a half, and that they have re-buffed the rolls on drawing frames and slubbers, but not on speeders, where, after 1½ years, they are just as good as they were at the beginning. This is day and night operation. He said the drawing frame and slubber rolls should be re-buffed about once a year. Harry J. Horn brought out that it is much better to re-buff more frequently than to let the rolls go longer without re-buffing, as the longer they go the more work is necessary and the more that has to be taken off. As to how many buffings a roll will stand, Mr. Horn said from four to five and another man said he gets three buffings to a roll. Mr. Edwards expressed the opinion that after a cork roll is worn, it loses its drafting qualities whereas the drafting qualities of a leather roll seem to improve with use.

Test of Waste Obtained from Vertical Openers and One Process Pickers.

Net weight of cotton was 5920 lbs. and was a mix of 4 bales of Middling and 8 bales of Strict Middling, 1 1/16" staple

The opening room has two lines of opening machinery, each line consisting of a bale opener and two vertical openers. The cotton from both these lines passes through a horizontal cleaner and over to the one process pickers. In this test three of these one process pickers were used.

OPENING ROOM 1ST LINE		
No. 12 opener	28.85 lbs.	.00487
1st vertical opener	34.80 lbs.	.00587
2nd vertical opener	30.06 lbs.	.00507
Fan	6.18 ozs.	.00006
		.01504
OPENING ROOM 2ND LINE		
No. 12 opener	28.85 lbs.	.00487
1st vertical opener	41.88 lbs.	.00707
2nd vertical opener	25.35 lbs.	.00428
Fan	14.93 ozs.	.00015
		.01637
Horizontal cleaner	7.38 lbs.	.00125
Total for opening room		.03266
PICKER ROOM		
No. 1 picker:—		
Trough	5.53 ozs.	.00006
1st beater, 1st box	5.91 lbs.	.00099
1st beater, 2nd box	1.91 lbs.	.00032
1st screen	2.30 ozs.	.00002
2nd beater	5.12 lbs.	.00086
2nd screen	2.25 ozs.	.00002
3rd beater	1.49 lbs.	.00023
3rd screen	.75 ozs.	.000007
		.002507
No. 2 picker:—		
Trough	4.19 ozs.	.00004
1st beater, 1st box	5.43 lbs.	.00092
1st beater, 2nd box	2.41 lbs.	.00041
1st screen	4.23 ozs.	.00004
2nd beater	3.44 lbs.	.00058
2nd screen	3.89 ozs.	.00004
3rd beater	1.46 lbs.	.00025
3rd screen	1.06 ozs.	.00001
		.00229
No. 3 picker:—		
Trough	5 ozs.	.000053
1st beater, 1st box	4.38 lbs.	.00074
1st beater, 2nd box	2.99 lbs.	.00050
1st screen	6.37 ozs.	.00006
2nd beater	1.47 lbs.	.00025
2nd screen	5.90 ozs.	.00006
3rd beater	2 lbs.	.00034
3rd screen	1.12 ozs.	.000019
		.002022
1st opening line	.01504	
2nd opening line	.03266	
1st picker	.00250	
2nd picker	.00229	
3rd picker	.00202	
	.05451	Total waste.

CARDS	
30 laps of 40.5 lbs. each =	1215 lbs.
Flat strips, 40.71 lbs.	.0335%
Cylinder strips, 8.06 lbs.	.0066
Motes and fly, 18.41 lbs.	.0151
	.0552% total card waste.

This concluded discussion of the prepared questionnaire, and the remainder of the session was given over to impromptu discussion. Mr. Edwards told of several safety devices and "kinks" he had found useful, including a rope attachment for raising hoods on pickers (see page 18 March COTTON); the use of a tapered lap pin on cards; and an arrangement for using garden hose for fire protection (see page 25 December 1932 COTTON).

R. A. Butler asked if the men present use the same tension gears on the different drawing frames. Opinion seemed to be that it is best to change from one frame to the other as needed in order to get the correct tension, regardless of whether the gears are the same.

Before closing the morning session, Mr. Massey submitted a question which he wished considered for report at the slashing-weaving meeting. He wanted to know what percentage of the sizing compound and starch applied at the slasher is represented in added weight to the warp. Readers are invited to determine this and report their findings.

After a "Dutch" luncheon, during which Mr. Thompson was elected as a member of the executive committee, the mill men returned to the meeting hall for the spinning discussion in the afternoon, which was led by J. C. Edwards, superintendent, Martha Mill, Thomaston, Ga.

Variable Speed Spinning Drive.

The first question under spinning was, "Please give in detail your experience with variable speed drive on spinning frames." The only report was from Lindale, Jack Smith of the Pepperell organization stating that "we tried it with a 7½-hp. motor on a 240-spindle warp frame, but could not work it on account of not having enough horsepower, and we put it on a 204-spindle filling frame on long draft. We start it at 132 r.p.m., on 25s, and it increases gradually for a period of 44 minutes, until it has reached 166 r.p.m., and then runs for the remainder of the doff. It gives us an increase in speed or production of approximately 16 per cent. We see no difference in end breaking or breaking strength. Our regular constant speed on this number is 136 r.p.m., so we start on the variable speed at 4 turns below this and the doff runs three hours, which is ten minutes earlier than the regular frames." Frank H. Cooper brought out that with a 16 per cent increase in production, and a 10-minute shorter doff, this means that more yarn is being put on the bobbin. Mr. Smith said he had not checked up on this.

Comer Turley, mechanical superintendent at Lindale, pointed out that with the earlier models of the variable drive, it was necessary to re-set the frame at each doff, but that the new model does this automatically. Mr. Edwards commented that this is a decided improvement. In answer to questions, Mr. Smith stated that the frames on which they have the variable speed drive are 2¾-inch gauge, with 1 7/16-inch rings, with traversing thread board, filling wind, no separators.

"Have you installed the wick oiler for front roll stands on spinning? If so, what is your experience?" This was the next question, which was answered by several. The report of Walter Dillard, Jr., superintendent, Sibley Mfg. Co., was read as follows:

"We have had wick oilers on two of our frames for six weeks, with a total of 72 front roll stands equipped. During these six weeks we have made three separate tests of the yarn from these frames and compared them with yarn taken from adjacent frames not equipped with wick oilers. These frames, both with and without wick oilers, are spinning the same numbers, using the same hank roving, same draft gears, same twist gears and travelers, with every condition identically the same except the method of oiling.

"We have also conducted a test to determine the amount of oil used, with the thought of finding out the difference in cost; that is, the cost of oiling by the old method and that of oiling with wick oilers.

Wick Oiler on Spinning Front Roll Stands.

"One full ½-pint Thompson oil can will oil 864 stands not equipped with oilers, or 24 frames of 36 stands to the frame. One full ½-pint Thompson oil can will oil only 67 stands or less than two frames, equipped with wick oilers. Therefore, oiling 864 stands with oilers every 40 hours consumes 13 ½-pint cans of oil; while oiling 864 stands not equipped with oilers every 40 hours consumes 4 ½-pint cans.

"Two tests for breaking strength showed an increase of two pounds per skein in favor of the old method and one test showed an increase of two pounds in favor of wick oilers. The final result shows a loss in cost of oiling, but no material advantage or disadvantage in breaking strength or running qualities."

A. B. Peterson, overseer of spinning, Pacolet Mfg. Co. No. 4, New Holland, Ga., said, "Some time ago we installed one spinning frame with wick oilers on the front line roll stands. Before installing the wick oilers we ran a two-weeks' test on this frame, keeping tab of the power consumed and the amount of oil used on the front stands. We then equipped the frame with wick oilers and made a similar test. The outcome of the test was: The power cost for 55 hours without the oilers was $2.36, and the power cost for 55 hours with the wick oilers was $2.27, so the wick oilers showed a saving in power cost of nine cents per frame per week of 55 hours, but the wick oilers consumed exactly twice as much oil." Mr. Edwards added that he had one frame equipped with wick oilers, and found no labor saving. He said he could always notice a lot of oil on the outside of the cups.

The Bunchless Automatic Cleaner.

The next question brought up by the chairman was, "What is your experience with the bunchless automatic cleaner over spinning frames? In using it do you carry less recorded humidity in the room?"

The equipment referred to is the traveling type of cleaning head which traverses spinning frames, running suspended on a track on the ceiling, and blowing a current of air down onto the frames for cleaning purposes. Mr. Rogers of Fulton Bag was the first to give his experience, stating that "we have one

mill of about 45,000 spindles fully equipped with the bunchless cleaner; and we did run less humidity in the room, but about the same time that we installed the cleaner we also put in long draft spinning, and I think that it was the long draft spinning that required the lower humidity; we put it down 5 to 10 per cent."

V. J. Thompson, superintendent, Manchester (Ga.) plant, Callaway Mills, stated that "we have a whole room of about 25,000 spindles equipped with the cleaner, and we found the same thing as Mr. Rogers reported. We put in long draft and also changed the numbers of our yarn, and had to cut down on the humidity. The cleaner seems to blow the humidity down and put it where the work is on the frames." Mr. Thompson said he had lowered the humidity, where the cleaner was installed, even before putting in long draft, but at the time his numbers were changed to finer counts.

"We did not find it necessary to make any change in our humidity, in putting in the bunchless cleaner," reported D. D. Quillian, superintendent, Athens Mfg. Co., Athens, Ga. "We find that with the cleaners—we have them over 18,000 spindles—we get a better distribution of our humidity." This mill's report stated further that with the cleaners over the spinning frames, the spinners were able to run 25 per cent more sides with the same amount of exertion.

Mr. Edwards, who has his mill at Thomaston equipped with the bunchless cleaner on spinning, brought out that with the cleaners in the spinning room, the effective humidity rises on account of its being better distributed and put down where the work is; that he gets a better humidity condition with a recorded humidity of 50 to 55 per cent than he got with a recorded 60 to 65 per cent without the cleaners.

Asked as to his experience with the cleaner generally, Mr. Rogers said, "I think it is worthwhile on certain numbers. I would hate to be without the cleaners on long draft; I believe they are an essential part of a long draft installation." Mr. Edwards also expressed satisfaction with them, stating that he would not like to be without them, pointing out that he has revolving top clearers on his long draft, and removed the back clearer from under the steel rolls, which allows the draft of air to go down to the roller beam. He called upon S. W. Hempstead of his organization, who declared that through savings effected they will pay for the cleaners in a year and six months. He added, in response to a question, that, on 23s and 15s, their cleaners get around every six minutes. Mr. Thompson said his are timed to get around every four minutes. Mr. Edwards reported that, as a result of the cleaning done by the bunchless cleaners, they wipe roving out every week of 144 hours operation, whereas it would be necessary to wipe them about every eight hours without the cleaners. Mr. Rogers observed that if the spinners are trained to wipe each bobbin it will not be necessary to "wipe roving" frequently.

Mr. Edwards stated that they encountered no difficulty in the operation of the bunchless cleaners, adding that it is very important, particularly on the "turns" of the cleaner traverse, against the wall, etc., to have the baffles set properly. He said the baffles should be set to direct the air current about midways of the creel.

Lower Humidity with Long Draft.

Following this discussion on automatic bunchless cleaners, the question of whether, in installing long draft spinning, it is necessary to change the humidity was presented. All of those reporting indicated the necessity of lowering the humidity for long draft. Mr. Quillian of Athens stated that, "After installing long draft spinning, it is necessary to change the humidity to stop an excess of hard ends and lapping up of the rollers. When the humidity was lowered, the work ran better than it ever had run with regular draft," Mr. Edwards agreed. O. W. Smith said this resulted from hard ends, lapped ends and lower twist multiple with long draft. Mr. Rogers said he runs as much twist in his roving as he did prior to putting in long draft, but that he runs a lower humidity, from 5 to 10 per cent less.

READERS are invited to submit for publication their ideas and experiences on any of the topics discussed at the meeting reported here. No names will be used in the publication of these comments, and this offers a means of further extending the discussion along these lines. Address your communications to the "How Other Men Manage" department of this magazine . . . . . .

The Traversing Thread Board.

"Please give your experience with the traversing thread guide for spinning frames," was next asked. This traversing thread guide is a comparatively recent development which is substituted for the stationary thread guide. It is fixed to a motion which causes it to move up and down as the build on the bobbin changes, the result being that when, on warp wind, for example, the traverse on the bobbin nears the top, the thread board moves upward relieving the tension on the yarn by reducing the acuteness of the angle at which it passes through the traveler. Mr. Smith of Lindale, said: "On our warp frames 19s. 2-inch ring, we have the traversing thread board, and we run 140 r.p.m., and we feel we could not do this without separators if we didn't have the traversing thread board. We are informed that the traversing thread board amounts to ¼-inch of gauge in this respect. We start the board off 1½-inch above the top of the bobbin, and at the top, it is about 3 inches above. On filling wind we do not change it quite that much. We feel that we could not spin these numbers without separators unless we had this traversing guide." This mill has 50,000 spindles of long draft spinning on which the traversing thread board is used.

W. R. Beldon, agent, Clark Thread Co., Austell, Ga., reported satisfactory results from the traversing thread board on a range of numbers from 34s to 70s. The device may be applied on old frames, it was stated in answer to a question from Mr. Edwards.

Harry H. Purvis, superintendent, Chicopee Mfg. Corp., Gainesville, was the first to respond to the next

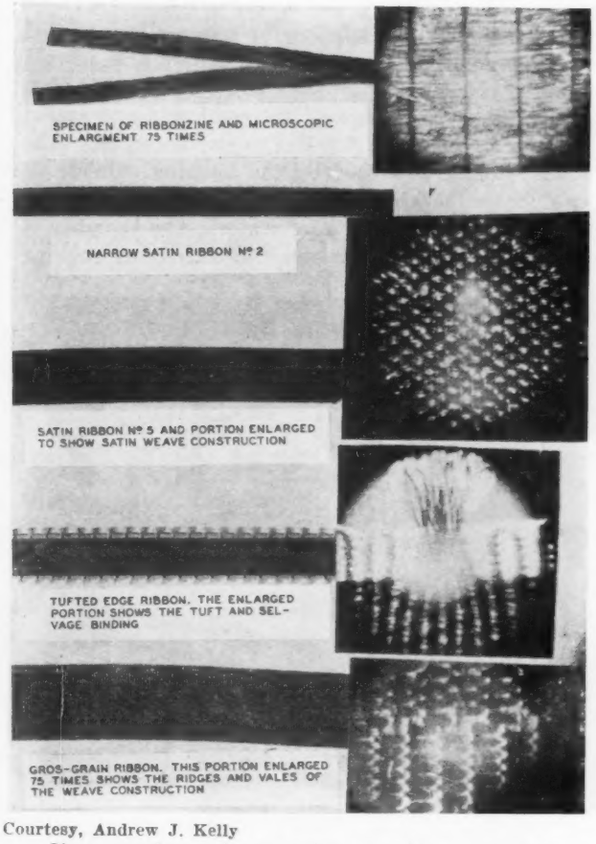
(Continued on page 55)

The Weaving, Dyeing and Finishing of RIBBONS

AN interesting discussion of a specialized field of textile manufacturing, with emphasis upon the problems of dyeing and finishing. The second part of the article will appear in an early issue.

By Noel D. White

Part One


SPECIMEN OF RIBBONZINE AND MICROSCOPIC ENLARGMENT 75 TIMES
NARROW SATIN RIBBON Nº 2
SATIN RIBBON Nº 5 AND PORTION ENLARGED TO SHOW SATIN WEAVE CONSTRUCTION
TUFTED EDGE RIBBON. THE ENLARGED PORTION SHOWS THE TUFT AND SELVAGE BINDING
GROS-GRAIN RIBBON. THIS PORTION ENLARGED 75 TIMES SHOWS THE RIDGES AND VALES OF THE WEAVE CONSTRUCTION

Courtesy, Andrew J. Kelly

Photographs, and micro-photographic cross-sections of different types of ribbons . . . . . .

FOLLOWING the trend of progress in all textile fabrics, ribbon manufacturing is continually changing in keeping with machine improvements, developments, and introduction of new fibers, new styles, and ever increasing uses.

There was a time when ribbons were woven altogether with dyed yarns. Silk and cotton were dyed and woven into ribbons in solid colors, or in checker and stripe effects, or printed laboriously by hand with blocks.

Some of the highest grade ribbons are still woven with dyed yarns. Most ribbons, however, are now woven in the grey, some with raw silk exclusively, others with a silk warp filled with cotton, and still others with silk, cotton and rayon. There are even ribbons woven entirely with rayon and a line of narrow ribbons not woven at all, in which the several threads, enough for the desired width, are set parallel close together, and flattened down between steel rollers and pasted together to form a ribbon that serves and looks like the woven ribbon.

Yarn Dyed Ribbons.

The best grade, high price ribbons are still made up with dyed yarn. The warp may be two or three thread organzine filled with a two or three thread tram. The silk for both the warp and the filling is usually heavily loaded, the organzine always bright, that is to say degummed and weighted with bichloride of tin and the tram sometimes used bright and weighted the same as the organzine, and in some cases it is made souple and woven into the bright organzine.

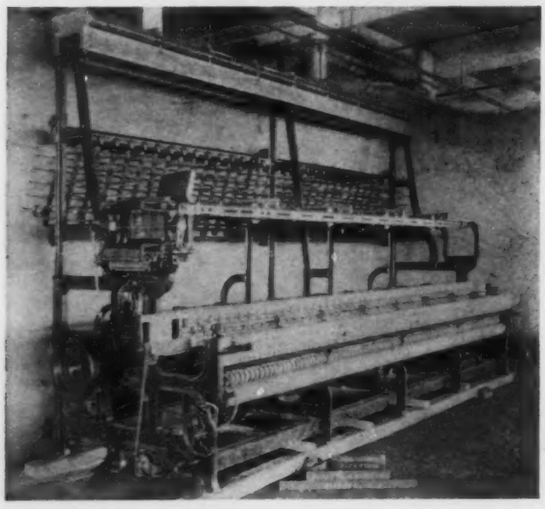
As some readers may not know what the term "souple" applied to silk means we will endeavor to explain what it is, and how to prepare it.

Souple silk was used very extensively during the last decades of the past century, and at the beginning of this one. It is still used to some extent for some classes of silk woven materials; gros-grains, umbrella cloth, heavy satins, brocades, and many other high priced, lofty appearing silk fabrics. Its function is to fill in all-silk cloth of the heaviest texture, and at the same time keep the price of such heavy silk fabrics as low as possible, and also to impart to the finished cloth a softness and feel unobtainable with boiled-off tram. Souple silk can be made to swell its thread diameter to several times its original size, and can be loaded to increase in weight as much as two and a half its weight in the grey when dyed in colors and fully four times when dyed black.

Soupling Silk.

In preparing souple tram, the raw silk is first soaked in a lukewarm solution of soap and soda ash to soften it and remove all oils and emulsifiers used in the throwing. Also, to remove any greasy spots that may be in the yarn, which are rubbed out by hand. This is very important because if any dirt or grease should remain in the yarn it would be still visible at the conclusion of processing. When the silk is cleaned and rinsed, if it is of a white quality and is to be put into colors, it is prepared for the weighting. If it is for white or light shades, or the silk is of the yellow gum quality, it must be bleached. This is done in an azotic bleach bath for thirty minutes cold. This bath

is prepared with three per cent nitrite of soda and five per cent sulphuric acid, or the yellow silk is turned in a weak solution of nitric and muriatic acid in cold water for about thirty minutes and rinsed. It is then soaped slightly to remove all traces of acid and stoved in a sulphur chamber for ten to twelve hours. The sulphur dioxide produced by the burning sulphur or brimstone in the airtight chamber will bleach the yellow gum of the silk to a good white. The chamber is opened and aired after the specified time, more sulphur



Courtesy, Crompton & Knowles Loom Works
A double deck ribbon loom, which weaves 96 narrow ribbons at one time . . . . .

put on the stove, lighted, and the chamber hermetically closed. The goods stoved this way at least three times, after which the silk is removed and without washing entered in the soupling bath.

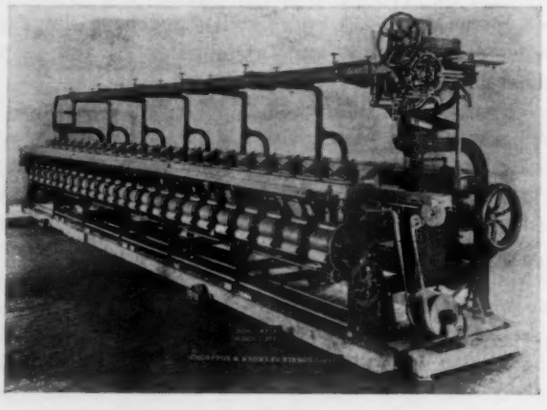
The soupling bath is prepared with five per cent cream of tartar or two and one-half per cent tartaric acid and five per cent sulphuric acid. The yarn is entered at the boil, turned slowly on sticks for about one hour. In this bath the harsh raw silk is softened, the thread swells, and if dried and pulled it will be seen to have changed materially in structure. Instead of breaking with a snap like a thread of degummed silk, it will pull apart and break the same as a thread of wool; the several fibrillae parting in different places. This method of processing is carried on for souple tram that has to be subsequently weighted with bichloride of tin by the tin-phosphate-silicate process.

Another way of soupling tram is done at the same time and in the same bath in which it is dyed. When the loading is not to exceed fifteen per cent to twenty per cent a bath of broken soap (exhausted degumming soap bath) made acid with sulphuric acid is used. The dyestuffs for the desired shade are added to this bath, and the silk is worked in it, starting at 150 degrees F. and raising to the boil until the shade wanted is obtained, then is boiling continued until the tram has acquired the soupleness desired. When tram is soupled this way the loss, which in degummed silk is from 18 per cent to 24 per cent, in this case is no more than six per cent to eight per cent, but in addition the covering power of the thread is greater, as its diameter is enlarged and the sericine still remaining in the thread, although having assumed a different physical form, makes it possible to absorb readily and more effectively any loading substance. In soupling and dyeing in the same bath the weighting materials are: tannic acid, china gall, and sumac extract. These materials are added to the bath when the silk is near the match wanted. An extra weight can be obtained up to 20 per cent of the gum weight of the silk with any of the above.

For black with the use of nitrate of iron, gambier, divi-divi, chestnat extract, mirabolan, and other tannin giving materials, together with the salts of tin, lead, and other minerals, souple tram can be loaded to yield as high as 64 ounces for every pound of silk. In weighting souple tram to use as filling for light, bright colored ribbons, sometimes sugar or glucose is used when weights are not to be very high. The dyed yarn in this case is passed by hand to be impregnated in the sirupy solution, wrung out and dried. In all cases the souple tram when dry has to be stringed (twisted a handful at a time on a peg fixed in the wall with a hand pin) until soft and pliable ready to be wound.

Weaving Fancy Ribbons.

Patterns can be obtained for any fancy ribbon by preparing warps with different colored threads and using different shades of filling. This was the procedure before the manufacturers learned to dye ribbon in the piece, using fibers of different nature. Silk and cotton ribbons were woven, stripes and checkered ribbons were produced in the dye bath. Acid dyestuffs were selected to dye silk to leave the cotton white, and direct dyes for cotton to leave the silk



Courtesy Crompton & Knowles Loom Works
Circular shuttle, 24-space ribbon loom equipped with 25-harness Knowles chain head

white. When polka dots and small flowers, or other designs were in fashion, the ribbons were dyed a solid shade with dischargeable dyestuffs and the design discharged in a printing machine with a printing paste composed of hydrosulphite, zinc dust, or any similar ingredient the printer had learned to use.

Some beautiful designs are obtained by preparing the warps with "Ombres" dyed yarns. Ombres (a French word meaning shade, shadow, background) dyeing is quite simple when understood. It is done on yarn and on cloth. In dyeing Ombre shades on yarn the idea is to dye many shades of the same color, beginning with the lightest, let us say a sky blue, and gradually increasing the depth of colors so as to arrive at the darkest shade of blue of the same hue in

twenty, twenty-five or more shades, leaving only a perceptible difference between one shade and the next one. When the threads are laid side by side in the warp in gradation from light to dark, or from dark to light, then to dark again and woven with a white filling, some striking effects are obtained as two or more sets of ombres can be put on one width of ribbon.

Piece Dyed Ribbons.

In preparing ribbons to be dyed in the piece, the warp is made mostly with one thread of unthrown silk. The silk in the grey is taken from the bale as it comes from the filature in Italy, Japan, or China. Enough for a day's work is opened up skein by skein, and eight to ten skeins loosely tied up in bundles. They are then put in a warm soap bath to soften the gum, and loosen up sticky spots in the skeins where the tight packing has caused the threads to stick together. The soap solution is made up with olive soap, with some neatsfoot oil, glycerine, borax, olive oil, or anything else the man in charge has a preference for. The idea is to have the silk soft and hygroscopic to facilitate winding with a minimum amount of waste.

The filling is usually of two-thread thrown silk in the grey, and is prepared the same way as the silk for the warp except that after it is soaked and wound on spools it is twisted double, and twisted again by the throwster, and finally put on little spools ready for the weaver.

Ribbons come off the looms in cuts of fifty yards to the piece. Occasionally when pressed to fill orders, cuts are made of twenty-five or thirty yards. They are then prepared for the dye house.

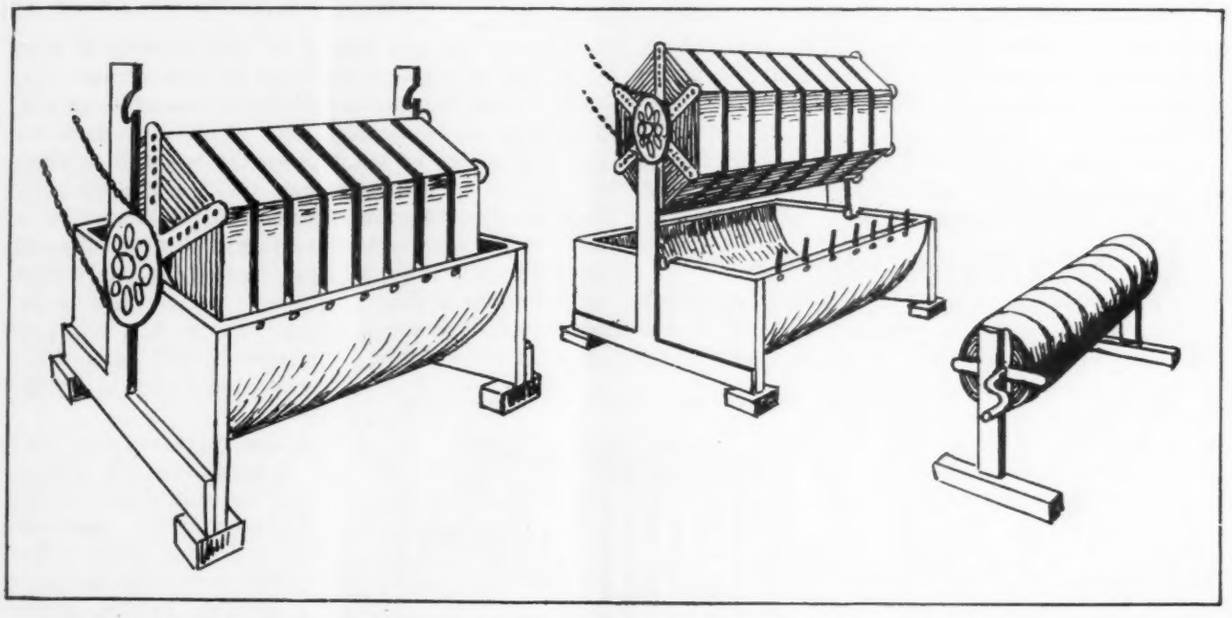
Narrow ribbons from Number One to Number Five are dyed in skeins. Sometimes higher number ribbons, and ribbons as wide as one inch are dyed that way, but it is bad practice. Wide ribbons should be dyed on reels of different kinds that will be shown later.

The ribbons to be dyed in skeins are reeled on a frame to make a skein about three feet long, and the ends tied together. A string is passed inside and tied on each skein to keep them separate from one another, and the number of skeins, or yards of ribbons needed for each color tied together.

When enough for a batch to boil off the ribbons are passed on sticks and thoroughly degummed in about one hour as follows:

Dyeing Ribbons in Skeins.

Since some dyers prefer to dye all-silk ribbons in the usual way of silk dyeing—the broken soap bath—they need the spent boil-off soap to make up their dyeing bath, the degumming has to be done with olive oil soap and a little soda ash to help emulsify the sericine and soaking oils. This operation is started at about 160 degrees F. and for a while the goods are worked at this temperature and watched for machine oil spots that may be on the goods from oil carelessly splattered on them while under the looms. Then the bath is heated to the boil and kept there about an hour; using about eighteen pounds of soap and two pounds of soda ash for one hundred pounds of ribbons, a thorough degumming is assured in that length of time.



Left to right: Dyeing ribbons on a star showing loaded star in dyebath; a loaded star ready to be lowered in dyebath; and a hand reel loaded with ribbons, in position to be transferred to star . . . . . .

If the goods are to be dyed immediately, they can be taken from the rack right into the dyeing bath, but if they have to lay for the next day or longer it is best to rinse them in warm water to avoid trouble—dry soap spots, discoloration, etc.

Dyestuffs suitable for broken soap bath dyeing are:

Victoria Blue, Patent Blues
Fast Red, the Rhodamines,
Silk Oranges,
Azo Yellow, Chinoline and Silk Yellow G,
Crystal Green, Nigrosine,
Acid and Methyl Violets, and most all the acid colors.

Some of the basic colors are also adaptable if acetic or formic acid is used instead of sulphuric acid. In an acetic acid bath many direct dyes can also be used now, and with a careful selection many shades can be produced that are faster to light and washing. The brighter, more brilliant colors however are only obtained with the acid and basic colors. White and light colors like pink, lavender, light blue, and ivory are best dyed in a fresh soap bath using about two per cent olive soap. The resulting shades are clearer and brighter than when dyed in water or broken soap, and it takes so little dye stuffs that the cost is not impaired to any extent. The most suitable dyes for a fresh soap bath are:

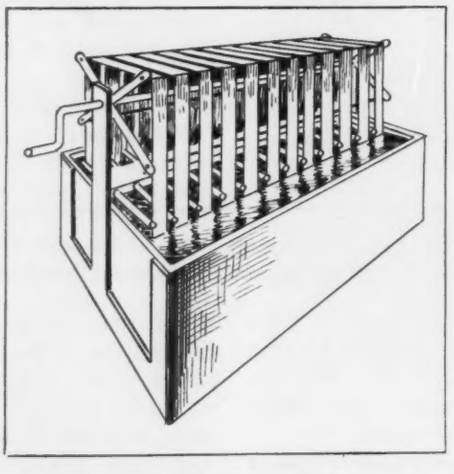
Rhodamine B and G, Silk Orange N,
Methyl Violet, Alkali Blue,
Fast Silk Yellow G.

When taking a sample to match the pattern it should be rinsed and then passed in another rinsing water to which a small amount of acetic acid has been added. Shades dyed in a soap bath will develop darker in the washing and souring bath, and extra caution should be exercised.

After dyeing, the goods are rinsed and brightened in a second bath with a little acetic acid, then whizzed. They are now ready to be finished.

Dyeing Wide Ribbons and Sashes.

Ribbons that are too wide to be dyed in skeins can be dyed on reels turned by hand over a vat, or on specially constructed machines. One of the best contraptions used for a long time by the writer is a wheel shaped like a spider web. It used to be called the "star". Actually there were two stars with six arms about three feet long formed by three strips of brass one inch wide and one-quarter inch thick, these strips were put across one another to form a star. Both stars were fastened in the middle to a brass shaft about two and one-half feet apart, and the ends of the shaft set in sockets in the center of the sides of a semi-circular vat. When loaded with ribbons the star was made to turn around in the dye bath. It could be lifted with a pulley up and down in the dye bath to facilitate addition of dyestuffs or chemicals, and the ribbons remained there from the boiling off until the end of the dyeing. Ribbons dyed on this machine had no chance of getting wrinkles, chafe marks, or anything to depreciate the quality of the goods, besides saving in the cost of labor. The only labor involved was the loading and unloading of it. Geared to a small motor, the machine worked easily by itself. The six arms of the stars, set with the width parallel to each other, had small holes one inch apart from the end to within a few inches of the center shaft in which small brass bars were inserted, and the ribbons naturally rested on these bars all around the frame.



Hand reel—reel is turned by hand until one or more ends appear above bath, then motion is reversed . .

To load the machine a bar was inserted in the lower holes, about six inches from the shaft in the center. To this the end of the ribbons were fastened, enough of them to fill the space between the two stars. Then the other five bars completing the first lay-out were inserted while the ribbons were unwound from a reel in front of the machine. When the last bar was inserted in the lower holes three or four layers of ribbons were laid on and then on to the next hole above. Putting in bars, laying ribbons on it, and winding from the reel to the frame of the star until the outside end of the arms were reached and the ribbon's ends tied there. The yardage dyed on that machine depends on the width of the ribbons. It worked fine after learning the best tension of the ribbon and the best speed.

Weighting Silk Ribbons.

Degumming and dyeing on this machine is done exactly as on ribbons processed in skein forms. Unloading from the star is just the reverse of loading it. The hand reel is placed in front of the vat. Ends are fastened to one of the bars on the reel and unwinding started from the star onto the reel, removing the bars as the unloading proceeds and taking care to have each ribbon guided so that each fold falls one on top of the other without overlapping one ribbon with the one beside it. By lowering one bar of the reel, the ribbons are then removed from it, rolled up in cloth, to protect them from possible spotting, and hydro-extracted ready to be finished.

A few years ago the practice of weighting silk fabrics as well as silk skeins found much favor among manufacturers, and many kinds of fine cloth like crepe-de-chine, georgette, chiffon, knitted underwear, and glove cloth which had always been pure dyed in the piece were now introduced to the tin - phosphate - silicate method of loading to increase their weight. It was found that beside restoring to the silk the loss of weight caused by the degumming, and adding a little surplus avoirdupois to the fabric that this method of weighting when properly applied, imparted to the material more beauty and drapiness, if not wearing quality and longer life. The ribbon did not escape the trend of industrial progress.

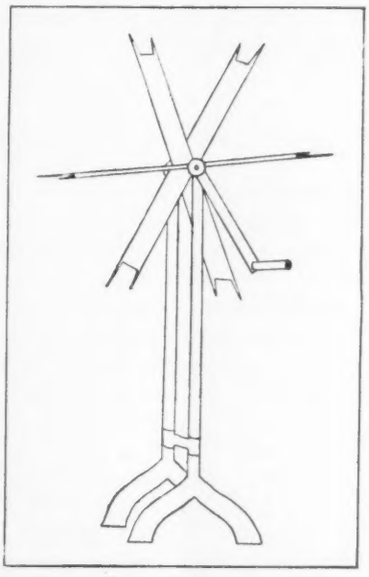
Ribbon intended to be weighted should contain nothing but silk. Other fibers will not stand the treatment. The progress is as follows: The boiled-off ribbons are washed thoroughly and given a final rinse in a bath containing two per cent muriatic acid at 120 degrees F. to remove all traces of soap and alkali, then whizzed and entered in a bath of bichloride of tin at about 32 degrees Baume (57 Twaddle) strength and

left in it for one hour. This bath should be prepared in a wooden vat lined with lead, constructed so that there is a space between the lead and the wood to circulate cold or iced water. Best results are obtained with this bath when the temperature is kept down to around 45 degrees F.

After the allotted time, the ribbons are taken from the bath, all the tin liquor removed by whizzing or squeezing and washed in cold water. They are worked into a bath of di-sodium phosphate for one hour, this bath should be of 5 degrees to 6 degrees Baume (7.2 to 9 Twaddle) at 150 degrees F. temperature. After this bath the ribbons are washed and according to the weight desired they are returned to the first bath of tin, or passed on to the silicate bath for the final operation subsequent to dyeing them.

The silicate bath is made up to 5 degrees Baume (7.2 Twaddle) at 110 degrees F. and the goods worked in it for one hour, then washed, soaped and prepared to be dyed. Dyeing is carried on the same way as described.

The ribbons increase in weight in proportion to the number of passes they are given in the tin and and phosphate baths. They can be passed from the tin bath to the phosphate as many times as desired. Success depends on the care exercised in the processing. Thorough washing from one operation to the other is essential not only for the good of the fabric, but also to prevent weakening and contamination of the standing baths. A lot of silk goods can be passed two, three, or even more times in the bichloride of tin and the sodium phosphate bath to obtain a desired weight. The silicate bath is given to the silk goods only once, at the end, after the last time the goods are passed in the phosphate bath. Weights are figured with ribbons the same as on all other kinds of silk material. So many ounces to the pound of silk in the grey; thus 18 to 20 ounces means that for every pound of silk material delivered to the dyehouse is expected a return of 18 to 20 ounces weight of dyed goods. This weight can be obtained by passing the goods in tin and phosphate twice and in silicate once; 22 to 24 ounces can be obtained in three passes, and so on for every pass, an increase of 1½ to 2 ounces can be reasonably expected.



Frame for reeling narrow ribbons to be dyed in skeins, 50 yards to a skein . . . .

Ribbons of Mixed Fibers.

Many ribbons are woven with two or more fibers. Silk and cotton ribbons are very common. Hat bands, ribbons for badges, and most ribbons made in grosgrain style of weaving are of a silk warp filled with cotton. Also, ribbon woven in fancy patterns in which a two-color effect is desired mercerized cotton is used. With the advent of the rayons the same dyeing effects are produced by using any of these fibers for filling and dyed accordingly.

In dyeing silk and cotton ribbons the spent degumming soap bath is not used and therefore olive soap is not strictly necessary. Boil-off oil of a known quality can be used instead if found profitable. With a good supply of soft water eight to ten per cent of soap, or its equivalent of degumming oil with two per cent of soda ash or sodium phosphate added to keep the alkalinity of the bath constant the ribbons can be degummed in forty minutes to one hour.

With the number of excellent dyestuffs to be had now, ribbon dyers today may select such dyes as can be used to advantage and partly dye the shade in the boil off bath.

The required dyes for a given shade are carefully weighed, dissolved, and added to the dye bath. Direct colors are mostly used for this purpose, but some of the neutral dyeing colors may also be pressed into service to color the silk approximately to the shade wanted. In this way the cotton is dyed the correct shade, and the silk can be brought up to pattern in the second rinsing water made slightly acid with acetic acid or formic acid. It is always best to finish the dyeing of silk and cotton ribbon in two baths as the colors resulting are much brighter than when dyeing is completed in the soap bath. Also, owing to the fact that matching silk in the soap bath is very uncertain and erratic, many additions being required to arrive at a given match, and the affinity of dyestuff for silk being greatly reduced when in an alkaline condition it is more economical and quickly done in a separate bath.

The same procedure may be followed in dyeing silk and rayon ribbon except when this mixture contains acetate rayon (Celanese) in which case the degumming must not exceed 175 degrees F. temperature or this rayon will saponify and the effect destroyed. Solid shades are often dyed on ribbon with silk, cotton, and the other rayon in the mixture, but when Celanese is put in two shades are invariably demanded and the nature of the Celanese fiber makes this a very easy performance provided the right dyes are selected and ordinary caution exercised.

Most ordinary dyestuffs like direct (substantive), acid, and most basic dyestuffs are the ones used in dyeing ribbons. These, however, will not dye the Celanese, although many of them will stain that fiber. For this reason it is necessary to select carefully those dyes that will leave the Celanese white when this fiber is used in the make-up of the ribbon and dye the Celanese separately.

For dyeing the cotton portion of the ribbon in the degumming bath, or in a clean Glauber salt bath direct dyes are the most suitable. These include the Erie,

(Continued on page 35.)

A Dyer's Comments on Shade Matching Machines for the Dyehouse

By Harold Schroeder

IN a semi-humorous vein, Mr. Schroeder here comments upon the development of mechanical, or rather electrical means for "shading"; offering constructive criticism with a view to furthering the investigations along this line . . . . . .

CERTAIN ingenious gentlemen, with foreheads bulged out by actively whirring grey matter and positively scintillating with ingenious ideas, have been at work devising machines intended to be more exact than the dyer in grading and judging the closeness and quality of shades produced on dyeing machines.

That there is a field for the improvement of shade matching every seasoned dyer will readily admit, because I doubt if there is one among us who does not realize, and so state to himself, that the very closest match he ever made could, if he had had the time, been just a little closer to the desired shade. Granted that obtaining exact matches in commercial work is an occurrence so rare as to be possibly an accident, the work and skill of a dyer comes down to a matter of establishing in his mind certain practical limits of variation from shade between which his dyed lots will come. This is entirely the same thing that we find in the modern machine shop. On any blue print for a new machine the designer will, if he knows his work, have written in the allowable variations from dimension for each one of the parts composing the machine. But the dyer is less fortunate than the engineer in that the dyer has no micrometer, no Johannson gauges, no Hartness screw comparators—no measuring instruments, in fact, except those in his own eyes, and it is to supplement the dyer's eyes and to fill in the lack of precise shade measuring instruments that shade matching machines have been designed.

While neither of the two types of shade matching machines so far publicly demonstrated has made much of a stir in textile circles, still it will be seen that there is "a place in the sun" for such a device and it is to the interest of all well informed textile people to take notice of these new developments and to give some thought of what they may eventually mean to the science and art of practical dyeing.

The first machine, developed at the Massachusetts Institute of Technology, is a scientific instrument of precision operating by analysis of the shade. Operating by means so ingenious that it is certainly difficult to follow the whys and wherefores and how the desired result is obtained—it will be possibly sufficient to state that when the machine has gotten through its particular task you see before you on a chart a complete absorption spectrum of the shade examined.

An absorption spectrum is not a very terrifying thing, even though the name may be a little unusual. Most of us have had some dealings with chemical analysis, possibly in connection with some liquid absorption problems of our own, and an absorption spectrum is an analysis of a shade which states that that shade is made up of so much blue, so much red and so much orange.

Having run the test with the shade under examination you then proceed to do the same thing with your standard which you are matching and you thus obtain two curves which can be super-impossed, one above the other, and if the match is exact the curves will fit one on the other without a bulge or a wrinkle.

So if the match is exact you are left in no doubt, but, as will happen in ninety-nine cases out of a hundred, some variation from complete agreement of the two curves will certainly be noticed and you then understand that the match is not exact. This machine stops its work right there. It will point out variations that no dyer can possibly detect and which possibly nobody else could possibly detect but it will not tell you whether the variations are big enough to make a great big question mark arise in the mind of the customer. In other words, this machine, instrument of precision that it is, possesses no judgment, and something else must be added to the precision to make it of greater value, and it is at this point that it might be well to let the second machine make its bow.

This machine works on a different principle from the first one. Less mathematically exact, less scientifically correct, it has gone at the problem of endeavoring to evaluate on a dial customer reactions to a shade match. It works something like this: The machine has two slots, one for the standard and a second for the sample. Both are put in the machine at the same time. You then press a button or pull a lever, and a beam of light is squirted at the standard and at the sample. Naturally when you squirt a beam of light at a color some of it bounces back while some of it stays absorbed by the samples under examination. The two beams of light bounced back from the samples are then compared electrically and, if they are identical, a needle on a dial points to a place marked Perfect Match, and everybody is happy. But if there is a difference in the two beams caused by more of the original light being absorbed by one of the samples than by the other, the needle on the dial strays away from the perfect match and to the accompaniment of groans from the dyer wanders over to a section of the dial marked "Poor Match", "Bad Match", or "Sure Rejection" or words to the same effect.

Such a machine, if it works, is of course just what every dyer would crave to have his work tested on, and I can picture carloads of them being distributed if it were not for a few facts on the other side of the

picture, concerning the agreement between the readings on the machine and practical affairs in the dyehouse.

Possibly the first thing a dyer would say when his new machine was finally unpacked and set up in his dyehouse is, "Where is the place you put the standard color card?" Just think how nice it would be if the color card association could supply their standards mounted on a wheel so that the wheel could be put into the color matching machine. Then when you wanted a certain shade you could turn the wheel till that particular standard was in the correct field of view, insert your own match and ascertain the horrid news as quickly as possible.

But there is as yet unfortunately no place to insert the standard color card nor will there be for a long, long time since the entire operation of the machine depends for its accuracy on a close physical resemblance in structure between the sample and the standard. If you should expect the machine to judge between a colored piece of paper, such as New York designers use, and your cotton swatch taken from the dyeing machine by loving hands, the machine would give up the ghost and start yelling for Uncle without being able to supply information of value about color differences in the two samples. A machine that depends for its action on a comparison of light reflected from two samples has to make very sure that the only possible differences in the two samples are those connected with the color. Everything else has to be very closely identical because to a beam of light the presence of fuzz on one sample and a sheared effect on the other are matters important enough to write home about, without doing any more looking for mere differences of color.

In other words, for the best results, silk should be matched against silk, cotton against cotton, fabric to fabric and finish to finish and then the machine is given its chance to express itself concerning color differences.

Let us return now to the first machine which drew the absorption spectrum of the sample out on a chart so that he who ran might read. To those who have followed the descriptions of the two machines it may possibly be evident that the first machine has a great deal to recommend it since the absorption spectrum is more independent of finish variations than a comparison of two light beams after reflection from two possibly different surfaces. Anyway, we will assume that the puzzled but willing dyer has obtained his two curves showing the presence of demonstrable differences between the two samples. He knew they were there, anyway, because he could see them, but he is letting the machine have its fun. From the two charts he will possibly read that there is a difference of 10 per cent blue, 15 per cent red and 2 per cent orange. You will have to admit that it does sound good to be so nice and exact about a dyeing. It is ever so much of an improvement over the old ways. Anyway the dyer hies himself off to his second hand and says "John, that dyeing needs 10 per cent blue, 15 per cent red and 2 per cent orange". This is all Greek to the second hand but he is game to the last and asks the dyer if he wants to put any more salt in. "Salt?" asks the dyer, startled. His new machine had said nothing about any more salt. It seemed somehow unsporting of the second hand to refer to such crude matters such as a partially exhausted dyebath, so back goes the dyer to look at the charts. No, there is certainly no mention of any salt there. It looks almost if the machine had no interest in salt and, now that he looked once more, that apparently exact rigmarole of 10 per cent blue and so forth had no possible connection with any dye, either in the bath or in the drug room or any maker's shelves for that matter. There is no dye in the world that is just blue, no dye that is pure orange or, thanks be, no dye entirely red. Every blue out on the market contains in addition to the blue a varying proportion of red and orange or yellow, not put in by the makers. Let's get that straight, but these varying color influences are present because of the shape of the dye molecule. The dye when shipped is undoubtedly what we all know as a straight color but chemically the molecule is a mongrel and causes jangles in three fields of color sensations. The same thing is true with yellows, reds, browns and every other shade or dye ever seen by man. Some indeed approach purity but none actually attain it, yet these color matching machines report their results in terms of pure dyes which are nothing but supposititious and hypothetical, having no direct connection with the world of reality.

Neither of these machines takes into account, nor can they ever take into account such important matters in connection with a dyeing such as partial exhaustion, a bath diluted by weak steam, yarn varying from standard affinity, the possible effect of raising the temperature, time of running, addition of salt or any of the dozen and one tools under the control of

(Continued on page 35.)

Electrical Shade Matching Devices.

PHOTO-ELECTRIC cells or "electric eyes" for matching shades and colors have been tried since these instruments were first devised. The photocell is more sensitive to changes in light intensity than the human eye. The problem is to register this sensitiveness and register it correctly.

To indicate the difference in shade of two flat surfaces of exactly the same texture is easily accomplished by the photocell. For production requirements the comparison must be shown on the dial of a galvanometer and the throw of the pointer must be sufficient so that any difference that any human eye could detect can be easily distinguished. The two surfaces must be quickly and accurately located on the device so that the cell can scrutinize them in less time than required by operatives using their eyes. It is obvious that such a device will not only be more reliable than the eye, but that it can be used day or night, does not suffer the inaccuracy of fatigue, and saves labor cost.

Instruments to accomplish this are already in the experimental stage.

For comparison of miscellaneous samples of materials of different construction such as yarns of various counts, no practical instrument so far has been devised. This is theoretically possible, complexity and high cost, however, prohibit the commercial success. Every mill man is aware of the trouble in matching shades of full cones of yarn of different construction, and the problem of matching small samples of different yarns is apparent.

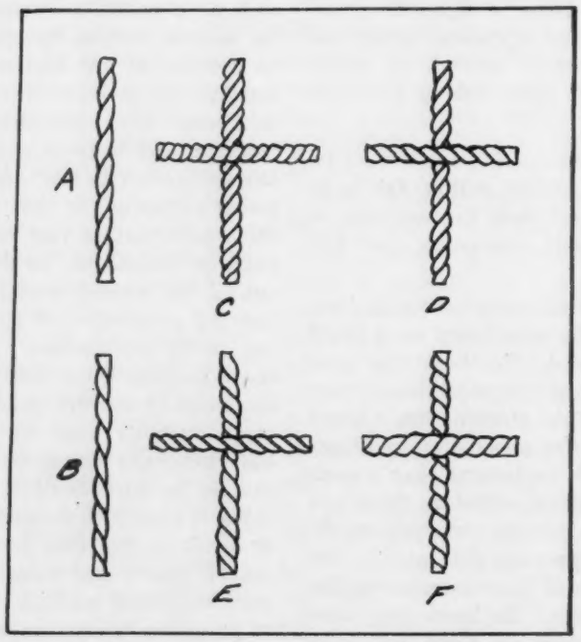
R. BIGHAM SMITH.

Yarn Twist and Its Influence in Cloth Manufacturing

THE term twist generally refers to the number of turns per inch inserted into the yarn. Primarily, twist is put into yarn to bind the fibers together, thereby giving strength to the thread. It also has a direct bearing upon the handle, strength, appearance and wearing qualities of the cloth into which it is made.

Turns of twist fluctuate with the count of the yarn, the finer numbers having more twist than the coarser yarn. The length of the fiber from which the yarn is made is another determining factor, the longer fibers requiring less twist than the shorter ones, while yarn intended for warp is harder twisted than filling, owing to the warp system having to withstand the strain of weaving.

The twist inserted in yarn, while strengthening, also makes it harder and reduces its luster. To many fabrics the necessary firmness of structure is imparted by the warp while softness and brightness are added by the filling system. For special purposes yarns are twisted more or less than the normal (or standard) amount, according to the effect desired in the cloth; thus voile and crepe yarns are very hard twisted, while yarns used in the manufacture of raised or napped fabric are twisted soft. The latter includes also fabrics intended for a mercerized finish which is enhanced with yarns of this type.



In the manufacture of fabrics made with two-tone twists, much depends on the twist in the yarn, as a slight variation in the turns of twist per inch will alter the appearance of the cloth considerably; an excess of twist would minimize the two-tone effect while a minimum of twist would enhance this condition.

Another factor which has a very distinct bearing upon the appearance of fabric is the direction of the twist inserted in the yarns, especially when any kind of twill line is developed in the fabric. This has the faculty to subdue or accent the twill lines according to the direction of twist inserted in warp or filling. Technically, yarns are twisted right or left hand, yet there is a decided difference of opinion in the trade as to what constitutes a right and left hand twist. Some technicians and mill men refer to right hand while others term the same yarn left hand, and vice versa. To prevent any misunderstanding in connection with this article the terms "regular" and "reverse" will be used instead of right and left.

Referring to the illustration, *A* represents regular while *B* represents reverse twist; *C, D, E,* and *F,* show a perpendicular warp end crossed by a pick of filling, showing the different ways that the warp and filling can be placed in relation to each other in regard to the direction of the twist. Illustration *C* shows a warp end twisted as in *A* or regular while the filling is the same as *B* or reverse. Illustration *D* shows warp and filling both twisted as in *A* or regular twist. Illustration *E* shows a warp as in *B* with a filling twisted as in *A*, both warp and filling being twisted directly opposite to the yarn at *C*. Illustration *F* shows warp and filling twisted as in *B* or reverse twist and directly opposite to the direction of twist at *D*.

In illustrations *C* and *E*, the direction of the twist on the under side of the top or filling pick is opposite to the upper side of the lower or warp end, consequently these threads will imbed more or less into each other, forming a compact cross section in which the weave is subdued considerably.

In twill fabrics the clearness and prominence of the twill lines are accented if the direction of the twill is opposite to the surface direction of the twist in the yarn. If one yarn predominates on the surface the twill should oppose or run with the twist of the surface thread according to whether the effect is required to show prominently or otherwise in the appearance of the finished cloth.

Referring again to Illustration *C*, it will be noticed that the twist lines run from the lower left to the upper right in both warp and filling. This combination would give a subdued right twill and a prominent left twill. Illustration *E* would give a bold twill to the right and a subdued twill to the left.

The direction of twill in Fig. *D* depends entirely

upon whether the warp or filling predominates on the surface of the cloth. If the cloth is filling faced, a bold right-hand twill and a subdued left-hand twill will result. If, however, the warp predominates, a bold left and a subdued right-hand twill will occur.

In the case of Fig. *F*, if the filling predominates a bold left twill and a subdued right will result. If on the other hand the warp is the predominating factor a bold right-hand and a subdued left-hand twill will result.

If a twill runs to the right and also to the left, as in herringbone twills, the twill line shows more in one direction than the other, showing definitely that the direction of the twist has the faculty of making bold or subdued twill. Shadow effects are made through the medium of regular and reverse twist in the warp system, the twist being alternated according to the width of the desired shadow effect. These will show to advantage where the fabric is warp faced. The twists are kept in the right position in the different processes by the reverse twist being tinted a fugitive color. The shadow phenomenon is brought out by the reflection of the light in two different directions, this reflection being caused by the fibers being exposed to the light at different angles.

The writer, who is constantly in touch with the analytical side of cloth construction, notes that twist in yarn is forming the basis of innumerable experiments, the tendency being to bring down the standard turns of twist in both warp and filling; hence the article on this subject.

Shade Matching Machines

(Continued from page 32.)

the dyer. Neither can the machine take into account the skill of the operative on the particular dyeing machine which might make necessary a special variation in the dyeing technique necessary for that shade. In other words, to a dyer with a dyeing on his hands in progress on the machine, these apparatus could not produce information of any immediate practical value. To be told that there is a variation of 10 per cent blue, 15 per cent red and 2 per cent orange is all very well, but it is impossible to express such variation in terms of pounds and ounces of shading color when that shading color is spectroscopically different from that in the bath and has its own peculiar methods of exhaustion. Moreover, there are many cases, particularly with sulphur colors, where the dyer has to take a long, long look into the future and estimate tolerably exactly just how that shade will look two weeks from date. That, being part of a dyer's work, would be quite a task for a machine.

I have always considered in dyeing that such difficulties in connection with shade as arose were very rarely connected with uncertainties about how much my sample differed from the standard. What has always been my problem in dyeing and one with which I am still struggling is how much to put in the bath to get the match from where the shade is now and whether the warp will stand one run more in the same bath or should I get up a fresh bath or can I use such-and-such a dye for shading that particular lot without causing streaks. Such problems as well as many more familiar to every dyer are matters quite outside the scope of any machine so until these machines are improved let us consider them devices for use only when the dyeing is finished and it becomes a matter of discussion between the mill and the customer. In that case, every dyer of repute ought to welcome the use of these machines and as many more as appear, because a good dyeing, well made to match both in daylight and gaslight, will stand up to and ring the bell consistently on any testing machine. And as for a bad match, well, nobody really needs a machine; in that case, all you have to do is to look at it.

Weaving, Dyeing, Finishing Ribbons

(Continued from page 31.)

the Pontamines, the Chlorantines, the Tetranils, the Trisulphones, the Benzos, and the dyer would do well by selecting the ones among these most suitable for his line of work. He may find among them some that will dye both fibers alike or nearly so, and some that will leave the silk white; the latter are the ones suitable for two-color effect. The silk can then be dyed any distinct and contrasting shade if required. No basic colors can be used in this case as these dyes have a tendency to go on the cotton also, only acid dyes can be used here.

In any case the cotton is dyed first to the shade wanted, then the goods are rinsed, and in a fresh bath acidified with acetic or formic acid at about 100 degrees F. the silk is brought up to the pattern with acid or basic dyes: Rhodamines, Zafranine, Silk Orange, Auramine, Silk Yellow G, Fast Red, Methylene Blue, and Brilliant Green Crystal, Alphazurine, Patent Blue, Methyl, and Acid Violets are among the best to be used for shading silk.

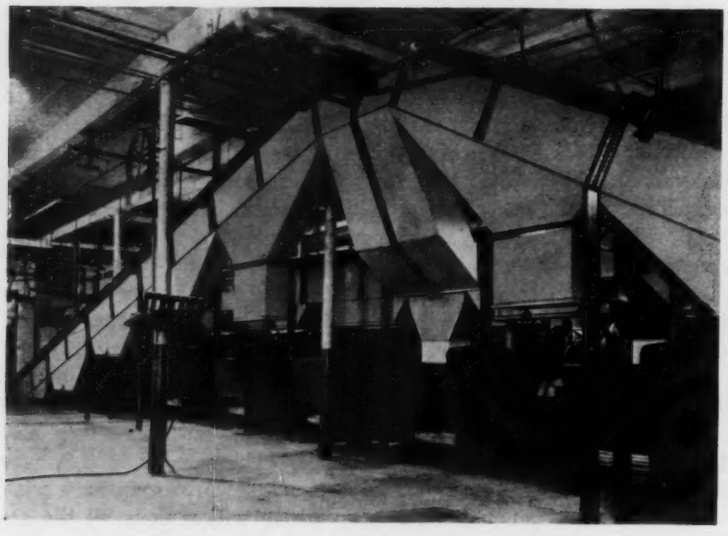
Owing to the exhausting quality of these dyestuffs in a slightly acetic acid bath, the ribbons can be extracted directly after a match has been obtained from this bath. No rinsing is necessary, and unless the bath has been overcharged with too much dyestuff, resulting in the goods acquiring a dull varnished like look, there is no danger of crocking. When this occurs it may be easily detected on the goods, and is caused by the precipitation of dyestuffs, especially on dark shades. The danger sign is when trying to reach a certain depth of the shade the goods seem to be unable to absorb any more dyestuff. In spite of all efforts the dyes seem to accumulate on the surface, and the shade to become duller. The remedy in this case is to rinse the lot, give it a lukewarm soap bath with five per cent olive soap which will remove all the accumulation of dyestuff from the surface of the ribbons, and after rinsing out all soap proceed to finish the shading in a clean bath, taking care to avoid using dyes that have this effect when mixed with other dyes. Rhodamine, Methylene Blue, Azo Yellow are the worst offenders when used in large quantity, and for this reason it is always advisable to use at the start such direct colors that will cover the silk very nearly like the cotton so that only small quantity will be required in the end to brighten up the shade.

A Cleaning, Blending and Distributing Installation of the Gyrator

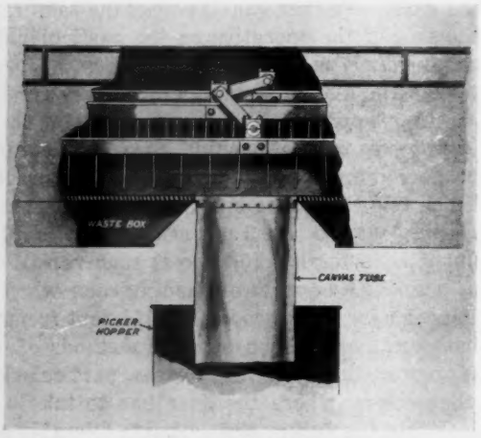
To get satisfactory results from single process picking, it is necessary to have some means of thoroughly blending the cotton before it reaches the pickers. The most commonly used blending arrangement is to install a number of ordinary hopper feeders in the opening room; either placing these around the extension apron of the bale breaker or putting the cotton through the bale breaker first and then distributing it to the blending hoppers. Either of these arrangements gives a thorough and satisfactory blending. However, many mills do not have space in the opening room for the installation of blending hoppers.

The Gyrator type of cotton cleaner, described in the April 1932 issue of COTTON, has recently been developed into an original and unique combination cleaning, blending and distributing unit. This unit is mounted immediately behind and over the picker hoppers, as shown in the accompanying illustration. The cotton is fed from the condenser, or other source of supply, into the Gyrator. This machine is mounted in an inclined position so that the cotton is elevated to a level above the distributor over the picker hoppers, and falls by gravity into this conveyor. A section of Gyrator may be used as the conveyor, or where rake distributors are in use, they may be used in conjunction with the Gyrator; in either case the feed to the hoppers is the same. A flexible cloth tube is attached to the bottom of the distributor so that the cotton may fall through it by gravity. The mouth of this tube rests on the mass of cotton in the hopper. As long as the hopper is filled up to the mouth of this tube, no cotton can feed into the hopper, but as soon as the level of the cotton falls slightly, more cotton will slide down this tube to replenish the hopper. The result is continuous feed of cotton from the distributor into the hoppers and the total amount of cotton is equally divided among the various hoppers and a thorough blending results. Cotton overflowing from the distributor is returned directly into the Gyrator for additional cleaning and mixing with fresh incoming stock. In a small mill, it is pointed out, using as an example a picker installation of three lines of pickers with an assumed production of 1,000 pounds of cotton an hour, there would be a continuus overflow of cotton from the distributor of 1,000 pounds of stock, since the Gyrator handles 2,000 pounds per hour. In this manner the entire supply of cotton would circulate through the Gyrator twice. The overflow cotton meets and mingles with the fresh cotton from the opening room, and by the time this has passed through the inclined Gyrator and begins to enter the picker hoppers, it has been thoroughly stirred up and the fibers intermingled.

It is pointed out that this circulation of the cotton and feeding the hoppers from this circulating stream



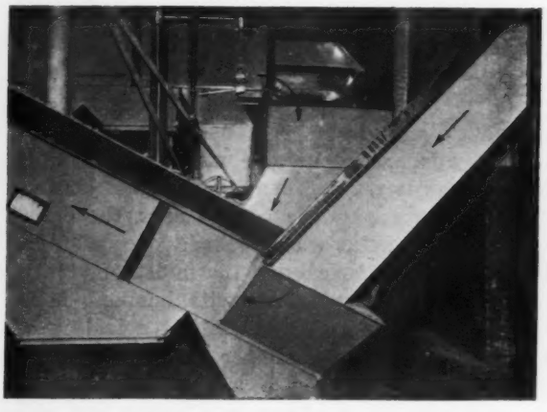
View of a Gyrator cleaning, blending and distributing unit as installed in a large mill specializing in high grade yarns. There are nine pickers to be fed with two mixes of cotton. It is necessary sometimes to run six pickers on one mix and three on the other, while at other times there will be five on one mix and four on the other. Therefore, the odd hopper is arranged to be fed from either Gyrator. Cotton enters the Gyrator in the end which rests on the floor, and is propelled upward over a continuous grid bar section to the discharge end of the machine near the ceiling. The cotton then falls by gravity into the horizontal section of the Gyrator which returns it to the starting point and discharges any overflow directly back into the machine.



A cut-away section of the Gyrator, showing its construction. The three steel connecting rods run the entire length of the machine, mounted on cranks spaced 120 degrees apart. The rotation of these cranks imparts a gyratory motion to the connecting rods, which in their downward movement causes the spikes to enter the cotton in the machine and push it forward along the grid bars. The machine requires no air draft, as the cotton is carried through the machine by the same action which does the cleaning. The waste boxes are fitted with swing doors for dumping waste. The flexible canvas tube automatically maintains the proper level of cotton in the hoppers.

gives an exceptional amount of blending; and also exceptional cleaning because with a circulating feature, a small installation will pass the cotton through the Gyrator twice and thereby get the same amount of cleaning as in a larger installation.

The blending with this arrangement is automatically controlled. On a large installation of six to ten hoppers, it is pointed out, the accurate division of the total amount of cotton between these hoppers results in a thorough blend; if the number of hoppers is reduced, the amount of overflow from the distributor is correspondingly increased and there is a larger amount of cotton to be mixed with fresh incoming stock, keeping the degree of blending practically constant regardless of the size of the installation; the percentage of cleaning being kept practically constant because on a small installation, the cotton recirculates a sufficient number of times to make up for the lesser footage of Gyrator.



At the right, a view showing the intake and overflow arrangement of the Gyrator. Cotton slides down the chute from the condenser and into the Gyrator, which at once begins to clean and elevate it to the distributing section of the machine. The overflow from the horizontal or distributing Gyrator is discharged into the return chute which feeds it back into the intake of the Gyrator, where it meets fresh cotton incoming from the condenser. The section at the left shows the inclined section of the Gyrator and the method of transferring the cotton from this to the horizontal or distributing section of the system.

An application of this cleaning unit may be fitted in with any rake distributor installation, it is explained. The operation of the equipment is automatic. A control valve is fitted into the Gyrator and it can be adjusted to operate an electric control when there is any desired quantity of cotton in the distributor. In this way, the amount of the overflow can be accurately maintained. The electric control starts and stops the opening room equipment as needed to furnish cotton to the pickers. Since the overflow returns directly into the Gyrator, there is no loose cotton on the floor, nor is it necessary to provide for any other means of disposing of this cotton.

It is pointed out that an opening room fire passing through the condenser and into the Gyrator would be immediately drowned out; fire cannot pass through the Gyrator nor can it spread. The machine is entirely of metal and is fully enclosed; there is no forced draft of air in the machine. Sprinkler heads are provided at intervals in the machine.

A brief description will make the operation of the Gyrator clear. It consists essentially of a rectangular metal casing, the floor of which is completely covered with grid bars. Within this casing are three rows of spring steel fingers extending the full length of the machine. These fingers are set in steel connecting rods which are mounted on cranks. As these cranks are rotated, the fingers have a gyratory movement which causes them to enter the cotton as they move downward and forward. This action of the fingers throws the cotton violently against the grids a few inches with each stroke. The stock is thus propelled mechanically through the machine without the aid of an air draft. It is stated that the repeated whipping opens the cotton thoroughly and shakes the dirt free from the lint, but does not cause curling, twisting or stringing of the cotton. Since it takes an appreciable length of time for the cotton to pass through the machine, there is ample opportunity for the separated trash to drop through the grid bars. There are no air currents, it is explained, to hold the light trash in suspension and carry it along with the cotton; the waste consisting of worthless foreign matter and short fly.

Indian Cotton

THE second official estimate of the 1932-33 Indian cotton crop is placed at 3,703,000 bales of 478 pounds, which compares with the revised second estimate for last year of 3,421,000 bales and a five-year average crop, 1927-1931, of 4,378,000 bales. The timate of 3,542,000 released in De- upward revision from the first es- second estimate represents a slight cember but is still below trade estimates of the current crop. Bombay advices say that local trade opinion is that the second official cotton estimate is about 355,000 to 418,000 bales too low which would place the crop a little over 4,000,000 bales, but still considerably below an average crop.

Local trade estimates, however, seldom agree with official figures which makes comparisons of the relative size of the crop year to year rather difficult.

The fourth estimate of the Indian cotton acreage is 22,350,000 acres as against 23,482,000 for the corresponding estimate (revised) a year ago. Some increase in yields this season is indicated by a slightly larger crop on a somewhat smaller area.

CURRENT TEXTILE TOPICS. . . .

Talk of the Month

SELDOM does an industry, or all industry, find itself in the position of current confusion and withal a strong optimism as that precipitated by the banking holiday. But it takes a crisis to reach a turning point in a serious sickness and that was what the country suffered in the depression. There finally came the decisive clash of accumulated evils with drastic remedial doses administered by the Government. Through the depression, several dark clouds had appeared, but the silver lining only proved a mirage to trade. Then finally came the moment when, with apparently one consent, the country felt a turning point was reached.

The General Situation In Textile Markets

Like the time of poverty in the midst of plenty, here was a period of antithesis with business hampered by lack of banking facilities but a feeling of new courage extant and stronger values obtaining. It now remains to be seen whether the next six months will take its cue from mid-March and also whether the new financial conditions will create a favorable position for the conduct of business at a profit. There has been much call for inflation and much opposition to the idea. Regardless of what terms are used, it will be granted that the need has long existed for adjustments from an over-extended deflation which had stifled industry, especially as it ran counter to incommensurate costs from sustained high taxes and other overhead charges. Controlled expansion of credit should bring temporary balance and subsequent adjustment to normal tax and other conditions.

Fundamentals of supply and demand long ago were brought into sound position. On the basis of preceding developments in the cotton industry, it was normally to be expected that March would make improvement over February, and only the dominance of outside forces lay in the way. Not only were stocks low at mills, but at wholesale trading centers and in retail establishments throughout the country. But the spring business was jeopardized through the month of February by the spirit of caution engendered by a "lame duck" session of Congress.

Naturally this procrastination was storing up anew a reserve of requirements and the immediate response to signs of possible inflation was the release of some of the pent-up demand for goods. Incidentally, the uncertainties over values of raw cotton during the period of suspended operation of trading on the futures exchanges bore evidence of the value of such a medium. Much buying was done to forestall higher costs on goods, based upon anticipated higher levels for raw cotton, although at the time the markets for the staple were demoralized. The buying of goods, moreover, intensified the disruption of normal marketing conditions in cotton by creating new pressure of need for supplies among the mills.

Among the factors upsetting the cotton trade during the months of the "lame duck" Congress, the chiefest came to a head just on the point of the new President's inauguration; viz, the Smith bill, given a pocket veto by ex-President Hoover. The veto would have measured larger in the trade news, had it not been that banking and other broad matters of general concern so totally obscured every other consideration for the time being. An aftermath of this action was new concern over propositions of similar nature for relief of farmers, with President Roosevelt determined to take some legislative measures aimed to ameliorate the mal-adjustments of the emergency. The best hope now is that general business will gradually remove the need for artificial activities which are planned to be quit when the emergency is over.

One fear from possible inflation, with extended buying to forestall higher prices, immediately arose in the danger of over-production again by mills. The lesson of 1929 should not be forgotten by this early time. Indeed, we amend that statement to say that the lesson of the last decade should be active in the mind of producers. Only by maintaining a proper adjustment of operations can manufacturers hope to secure profitable business and, incidentally, to promote a return to normal anticipation of demand by consumers of gray goods.

In this stage of things, a timely message is heard from S. R. Glassford, president of Bliss, Fabyan & Company, Inc., who stresses the truth that one aim and object of the cotton industry is to serve the purchaser of the finished article. "Regardless of how many processes may intervene between the mill that makes the cloth and the retail counter that places the finished article before the customer," he states, "the higher the degree of coordination, understanding and recognition of mutuality of interest, the greater the degree of success."

New England Mill Situation

NEW ENGLAND'S cotton mill industry showed a quick response to the pick-up of selling activity in goods which developed with the advent of the new Administration at Washington and the sudden livening up of legislation by Congress. This district had been running parallel with the other sections, which means on a relatively much lower scale of percentage. It will take a broad business to put the northern mills back on a normal level, but a return to activity on the scale of the peak last fall would be welcome as a start toward profitable and satisfactory operation of the industry.

Among the announcements of important resumptions around mid-March were those of three large

units at Fall River. It was stated that two units of the King Philip branch of the Berkshire Fine Spinning Associates would provide work for 1,000 workers, after closing down in February. Another was the Sagamore Mills, with work for 800 employees. Both companies reported an influx of substantial business the first part of the month. The Pilgrim Mill also reported active business and other plants were doing better. From Burlington, Vt., it was noted that the Queen City Mills was to give work to 500.

News shortly before from New Bedford was of another nature, stressing the point that Massachusetts mills are in dire need of adjustment, through modification of restrictions upon operation in the state or of more unified control through the other textile sections of the country. The passing of the Pemaquid Mills property into the hands of the municipality was announced to be planned. This meant three mill properties already in the hands of city officials or about to become so, as the result of the vicissitudes through which the industry has been passing.

In addition, the news of the month included granting of power to directors of the Beacon Manufacturing Company of the same city to move equipment of its plant there to the unit at Swannanoa, N. C., and to sell, dismantle, lease or hold the real estate in New Bedford at their discretion. Work on an addition to the southern plant had begun, in anticipation of this action. It is expected that the New Bedford mill will be closed in June, adding to the toll of New England's cotton industry.

By co-incidence, the legislature of New Hampshire was concerned at the same time with a measure for restriction of the work week in the state to 48 hours, although textile operatives were to be allowed to work nine and three-quarters hours a day. At the time of writing, the bill was not disposed of, but it was causing reaction. A notable case was that of the Nashua Manufacturing Company. The movement of 254 looms of the company to its mills in Alabama happened to be under way and Robert Amory, treasurer of the company, stated that this was by no means the beginning of a wholesale transfer of operations to the South. He added, however, a greater movement of machinery would become necessary in the event of passage of the bill. The House passed the bill by a vote of 2 to 1.

It is an old story that obsolescence has contributed to liquidation of machinery in recent years and in 1932, judging from the compilation of the Clark Publishing Company, the South also lost some spindleage. The restriction in operation by law in Massachusetts, however, is accountable for severe losses beyond the natural causes of competition. The Associated Industries of Massachusetts recently has reported that fifty-eight mills in Fall River, employing 18,145 operatives and having a capacity of 2,378,796 spindles and 54,035 looms, were liquidated between 1921 and 1932. The report stated that these mills had an aggregate capital stock of $25,985,000. It was estimated that a total of $113,755,570 in capital of mills in the State had been withdrawn and that 80,380 employees had lost their positions in the industry. And this through laws to benefit labor!

According to a writer in the *New Bedford Standard,* some of the large converting houses in New York have been trying to get mills of the Massachusetts city to turn idle looms into commission weaving. Experiments heretofore with the plan, however, are said to have given manufacturers trouble with claims of defective goods and delays in delivery.

More extensive weaving of mixed goods, involving cotton, rayon and silk, is forecast for New Bedford and less spinning of cotton. There is, accordingly, gratification over the plans of the Silk Association of America (which has recently considered recognizing through a change of its name the larger share in its activities of rayon) for formulating standards in rayon. The industry has been subject to what is designated as a "claims racket", especially in the rayon end, to which the establishment of a code in the synthetic branch would tend to put an end.

Curbing Cutthroat Competition

An address presented as a basis of discussion at the recent meeting of the Conference of Statisticians in Industry which operates under the auspices of the National Industrial Conference Board, by Mr. Nelson B. Gaskill, formerly Chairman of the Federal Trade Commission, is of value and interest to textile manufacturers, as a contribution to the current discussion of the anti-trust laws.

The address outlines a way out of the dilemma of profitless competition and suggests a way to obviate the evils of unguided paternalism. Mr. Gaskill advocates deliberate control of competition as a substitute for the prohibition of agreements in restraint of trade.

In its barest outlines the proposal is that the Federal Trade Commission Act be amended to give legal powers to the Trade Practice Conference. The keynote of the new control is the requirement that the individual selling price shall, with some necessary exceptions, be not less than the individual cost. The governing principle of this regulated competition is that the return of cost in the use of capital is to be primarily assured as the guarantee of public welfare.

To attain this end, Mr. Gaskill recommends that legislation be enacted to cover certain essentials. It should give the Trade Practice Conference a legal status as an agency set up to regulate competition; it should state, generally at least, the authorized scope of these regulations. The legislation should establish the application of the democratic principle of majority rule in the adoption of regulations. It should provide for supervision by the Commission with power to reject resolutions that tend to be monopolistic or fix uniform prices. It should provide for the enforcement of all such resolutions that are not rejected by the Commission, by making violations of them unlawful as unfair methods of competition. Finally, it should eliminate or delimit judicial discretion in review, so far as is possible.

COMMENT ON THE COTTON MARKET

New Orleans, March 15th, 1933

As is generally known, the American cotton exchanges were closed during the bank holiday period. As a result business in spots and futures was suspended in the American markets, although there were reports of some cotton having been sold in the interior at prices sharply higher than those prevailing prior to the closing of the exchanges. Foreign markets, however, were open as usual and displayed much firmness in the face of the recent financial crisis in America.

Following the recent opening of the banks, trading was resumed on the New York Stock Exchange with values showing sharply higher, due to the constructive measures being put through in Washington in the interest and welfare of the country, which has done much to create a more favorable sentiment throughout the country. The New Orleans and New York Cotton Exchanges will reopen for business tomorrow, Thursday, March 16., with the outlook favorable for a more active and probably higher market.

A recent preliminary estimate placed the world's consumption of lint cotton for the first half of this season at about as follows, with comparatives for the same period last season:

August 1 to January 31— Bales—	This season	Last season
World's consumption of American	6,821,000	6,088,000
World's consumption of foreign	5,246,000	5,572,000
World's consumption of all kinds	12,067,000	11,660,000

Compared with last year, mill stocks of the world at the close of January were reported to have been

Bales—	This year	Last year
World mill stocks of American cotton	2,704,000	2,775,000
World mill stocks of foreign cotton	1,857,000	1,833,000
World mill stocks of all kinds	4,561.000	4,608,000

As noted above, the world's consumption of American for the first half of the season was larger than for the same period last season by a good margin. Another favorable feature is that world mill stocks of American at the close of January were slightly less than they were on corresponding date last year. As to foreign growths, comparatives are not so favorable, yet not bad at that.

CENSUS BUREAU REPORT FOR FEBRUARY

United States— Bales—	This season	Last season	
Consumption of lint, February	441,663	453,239	
Consumption of linters, February	46,470	54.241	
Consumption including linters, February	488,133	505,480	
Consumption of lint, 7 months	3,253,149	3,076 982	
Consumption of linters, 7 months	358,365	394,145	
Consumption including linters, 7 months	3,611,514	3,471,127	
Mill stocks February 28th	1,441,641	1,634.344	Feb. 29th
Mill stocks January 31st	1,495,527	1,638,136	
Stocks in public storage and warehouses February 28th	9,379,990	9,510,820	Feb. 29th
Stocks in public storage and warehouses January 31st	10,020,760	10,039,427	
Stocks in mills, public storage and warehouses February 28th	10,821,631	11,145,164	Feb. 29th
Stocks in mills, public storage and warehouses January 31st	11,516.287	11,677,563	
Active spindles during February	23,659,100	25,190,276	
Active spindles during January	23,766,968	25,004,760	

While there remains a large surplus of American in the United States, world mill stocks of raw cotton, American, at the close of January was slightly smaller than it was on corresponding date last year, and of foreign was only slightly larger. It must be remembered that the world-wide depression has been on for the past three years, during which long period, people throughout the world have apparently been buying from hand to mouth only; in many instances have not been able to buy at all, and were it not for the aid of the numerous governments would have suffered intensely from cold and hunger; the result of so much unemployment.

Such conditions have been a part of the past, but are likely to improve gradually in the future, perhaps faster than generally expected, as the stage seems to be set for a return to normalcy in time, if only slowly at the start.

Inventories with jobbers and retailers in all branches of trade are reported low, and since charity had to come to the rescue of so many in distress because of depleted wardrobes and financial embarrassment this winter, it follows that there is a potential demand for goods under the surface that would make itself felt with the coming of better times for the masses in the way of increasing employment and the return of prosperity, which would likely bring about increased consumption on a large scale.

As to the prospects for the next American cotton crop, preparations for which are now under way, with ample moisture in the ground for the present, it is rather too early to form an idea, except to state that private returns indicate some increase in the acreage as a whole unless hindered by possible Federal legislation in the interest of the farmer, with the view of reducing this year's production, raising the price, and thereby improve the purchasing power of the South, which in turn would react favorably on the industrial sections of the country by putting more people to work in mill and factory.

Some cotton is being planted in extreme southwest Texas already, at present the outlook is for less damage by boll weevil this year owing to the very low temperatures experienced throughout the cotton region during the winter, and very little change from last year indicated in the use of fertilizer. According to returns to the New Orleans Cotton Exchange, sales of fertilizer tags sold in cotton states from August 1st. to February 28th. totaled 468,916 tons versus 471,001 tons for the corresponding period last season.

WHAT THE SOUTHERN MILLS ARE DOING.

Crystal Springs Bleachery, Chickamauga, Ga., manufacturers and converters of broadcloths, shirtings and linings, is installing a Universal Sanforizing range, made by the Textile-Finishing Machinery Co., of Providence, R. I., who are licensed by Cluett, Peabody & Co., Inc., to manufacture Sanforizing equipment. The range for Crystal Springs is designed to include everything necessary for guaranteeing a predetermined control shrinkage. It is approximately 85 feet in length, and is made up of the following sections: Feeding-in section, tenter section including the new 30-foot high speed automatic tenter and the water and steam sprays, draw roll section, moistening section and Palmer section. At the delivery end of the range both a winder and folder are furnished to provide for either winding the fabric in rolls or plaiting down in trucks as may be required. Provision is made for cloth that is not required to pass through the tenter by arranging the Palmer section so this unit may be operated as a self-contained section.

The picker department of the No. 2 mill at Canton Cotton Mills, Canton, Ga., has been changed over to the one-process system as manufactured by the Precision Gear and Machine Co., Charlotte, N. C.

Hartwell Mills, Hartwell, Ga., have, according to report, completed their high speed winding equipment by the addition of an Abbott Machine Company winder.

A 6-cylinder, 360-hp Diesel engine has been installed at the Oakboro Cotton Mills, Oakboro, N. C.

Six No. 40 70-spindle Universal winders and three high speed warpers have been installed at the Glenwood Cotton Mills, Easley, S. C., to replace old equipment.

Locke Cotton Mills Co., of Concord, N. C., have purchased the Roseknit Hosiery Co., Sumter, S. C., which operates 99 machines on men's half-hose.

Brandon Corporation, Greenville, S. C., recently installed three Universal No. 40 70-spindle winders and one high speed warper in its Poinsett Plant at Greenville.

Hermitage Cotton Mills, Camden, S. C., have installed a complete high speed winding and warping system. The winders were furnished by Abbott Machine Co., and the warper and creel by the Cocker Machine and Foundry Co.

A high speed warper and creel have been installed at the Charles Mills, Red Springs, N. C.

LOOK TO THESE DISTRIBUTORS FOR MILL-PROVED EQUIPMENT BY GOODYEAR

Goodyear is represented in your community by an authorized distributor of Goodyear Mechanical Rubber Goods for the textile industry. Conveniently located, well stocked, and fully responsible, your Goodyear Mechanical Rubber Goods Distributor is able to supply you promptly with these mill-proved standard and special products

Albuquerque, N. Mex.
J. Korber Co.

Amarillo, Texas
Morrow-Thomas Hdwe. Co.

Atlanta, Ga.
Sharp-Zachry-Horsey Co.

Baltimore, Md.
Carey Machinery & Supply Co.

Birmingham, Ala.
Moore Handley Hdwe. Co.

Bluefield, W. Va.
Bluefield Supply Co.

Breckenridge, Texas
Dunnigan Tool & Supply Co.

Charleston, W. Va.
Capital City Supply Co.

Charlotte, N. C.
Textile Mill Supply Co.

Chattanooga, Tenn.
Mills & Lupton Supply Co.

Columbia, S. C.
Tidewater Supply Co.

Corsicana, Tex.
Oil City Iron Works

Dallas, Texas, Murray Company

Eldorado, Ark.
Eldorado F'dry & Mach. Sup. Co.

Gastonia, N. C.
Gastonia Supply Co.

Harlan, Ky.
McComb Supply Co.

Hopkinsville, Ky.
Cayce Mill Supply Co.

Houston, Tex.
Rose Hoskins Supply Co.

Jackson, Miss.
Mississippi Foundry & Mach. Co.

Jellico, Tenn.
McComb Supply Co.

Kansas City, Mo.
Gustin Bacon Mfg. Co.

Laurel, Miss.
Laurel Mach. & Foundry Co.

Macon, Ga.
Taylor Iron Works & Supply Co.

Miami, Fla.
Railey-Milam Co.

Nashville, Tenn.
John Bouchard Sons Co.

New Orleans, La.
Dixie Mill Supply Co.
Stauffer-Eshleman Co., Ltd.

Norfolk, Va.
Tidewater Supply Co.

Owensboro, Ky.
Wright Machine Co.

Paducah, Ky.
Henry A. Petter Supply Co.

Pensacola, Fla.
Pensacola Tool & Supply Corp.

Phoenix, Ariz.
O. S. Stapley Hdwe. Co.

Picher, Okla.
Consolidated Mine Supply Co.

Pittsburg, Kans.
General Machine and Supply Co.

Rome, Ga.
Battey Machine Co.

St. Joseph, Mo.
Missouri Water & Steam Sup. Co.

Salisbury, Md.
R. D. Grier & Sons Co.

Shreveport, La.
Superior Iron Works

Springfield, Mo.
Schweitzer Bros.

Sulphur, La., Union Supply Co.

Tampa, Fla.
Knight & Wall Co.

Tulsa, Okla.
Gustin Bacon Mfg. Co.

Tyler, Tex.
Walter Connally Co.

TEXTILE BELTING

THE GREATEST NAME IN RUBBER

GOODYEAR

NEW TEXTILE EQUIPMENT AND PUBLICATIONS . . .

Bulletin on Recording Thermometers

The latest edition of the recording thermometer bulletin—No. 169-1— of the Foxboro Company, Foxboro, Mass., recently issued, contains many new features and additions. Among these are descriptions of the Anti-Ambi thermometer, the new self-contained, portable temperature recorder, and the Rotax controller. A new section on bulbs has been added in which each bulb is described and illustrated. A complete table of recorder charts and typical chart sections is also shown.

:: :: ::

Motor Reduction Units

Allis-Chalmers Manufacturing Company, Milwaukee, Wis., have recently issued Bulletin No. 1164 describing their line of motor reduction units. The unit is described as a compact, self-contained speed reducer that provides low speed drives without sacrificing the inherent advantages of the separate motor and speed reducer construction. Standard speeds at the power take-off range from 3.02 r.p.m. to 350 r.p.m. These units are available with any type of standard motor. Round frame motor is used, the gear frame providing the motor support.

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Loom Runs 700 Picks Per Minute

A "Saurer" three head, high speed, single shuttle ribbon loom, built in Switzerland especially for the textile school of North Carolina State College, Raleigh, N. C., has been imported by Saentis, Inc., Union City, N. J., and will be used to instruct the textile students at N. C. State in the manufacture of cotton, rayon, silk, tinsel and elastic ribbons. With a speed of 700 picks per minute, the productivity per shuttle is extremely high. The harness motion which eliminates chafing is described as an important patent feature contributing to the high speed attainable. The filling is laid in by means of an adjustable shuttle which unwinds just sufficient filling for the width of the ribbon at each pick. The filling is beaten up by a vibrating split reed patented by Saurer.

Each loom head may be set up to weave a different ribbon or tape. Elastic webbing and tinsel ribbons can be woven by using special attachments that are available. When either a warp thread or filling breaks or runs out, the shuttle affected stops instantly, the other heads continuing in operation. A double spindle precision cross winding apparatus has been installed to prepare the filling for this loom. This winding apparatus was built especially for the textile school by Sehweiter, Ltd., Horgen-Zurich, Switzerland.

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New Violet

The dyestuffs division of E. I. duPont de Nemours & Co., Wilmington, Del., has announced Pontamine Diazo Violet RR, a developed color which, when diazotized and subsequently developed with beta naphthol, produces reddish shades of violet. It is described as redder and brighter than Pontamine Diazo Violet BL and, like the latter, as being particularly useful for dyeing cotton and rayon piece-goods that are to be discharged. In addition to its use on cotton and rayon, it is said to be suitable for the dyeing of pure silk if acetic acid is used to complete exhaustion. The color, it is stated, is fast to acids, ammonia, fulling, ironing, perspiration, rubbing, stoving, washing and water.

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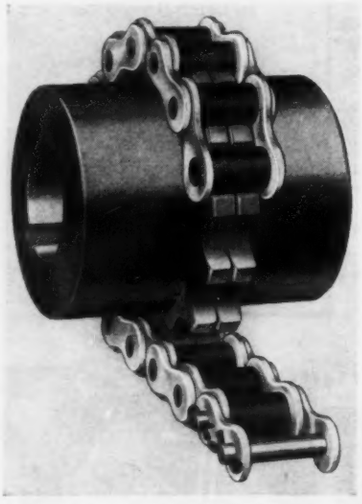
New Flexible Coupling

Link-Belt Company, Indianapolis, Ind., manufacturers of "RC" finished-steel roller chain with sprocket wheels, have announced the development of a new flexible coupling in which the company's recently-announced "RC" Silverlink roller chain is used. The new coupling, known as the Link-Belt "RC" flexible coupling, consists simply of two cut-tooth sprocket wheels (or coupling halves) and a piece of roller chain to connect them, all working surfaces being machined to close tolerance. A pin-and-cotter link is used to couple or remove the chain. If desired, the coupling can be enclosed in either a stationary or revolving automatically-lubricated oil-retaining casing.



New Flexible Coupling with RC roller chain . . . .

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Bulletin on Glass-Coating

A bulletin describing Skyco NoGlare, a liquid glass-coating, has been issued by The Skybryte Company, 1919 East 19th St., Cleveland, Ohio. The product is described as a liquid glass-coating which when applied to windows, eliminates the heat and glare of direct sunlight; is weather-proof but easily removed. It is a sky-blue liquid that may be painted or sprayed on windows. It dries quickly, leaving an even, continuous opaque film that allows 94 per cent of the light to penetrate, but eliminating glare and, by filtering out the infra-red light waves, reducing the temperature of the sun rays from 10 to 20 per cent.

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A New Brown

Pontamine Fast Brown 2RL is a new dyestuff recently developed by the dyestuffs division, E. I. duPont de Nemours & Co., Wilmington, Del. It is described as redder and brighter than Pontamine Fast Brown RKL, and can be used either as a self color or in combinations where a reddish brown component is indicated for the production of mode shades. The company states that it is expected that the new color will find its chief use in the dyeing of cotton and rayon, continuing, "Its level dyeing properties and solubility are said to permit of ready adaptability to the dyehouse processes employed for these fibers in various stages of manufacture. It has exceptional fastness to light, and curtain and drapery materials and similar fabrics requiring extended exposure to light, may be dyed to advantage with it."

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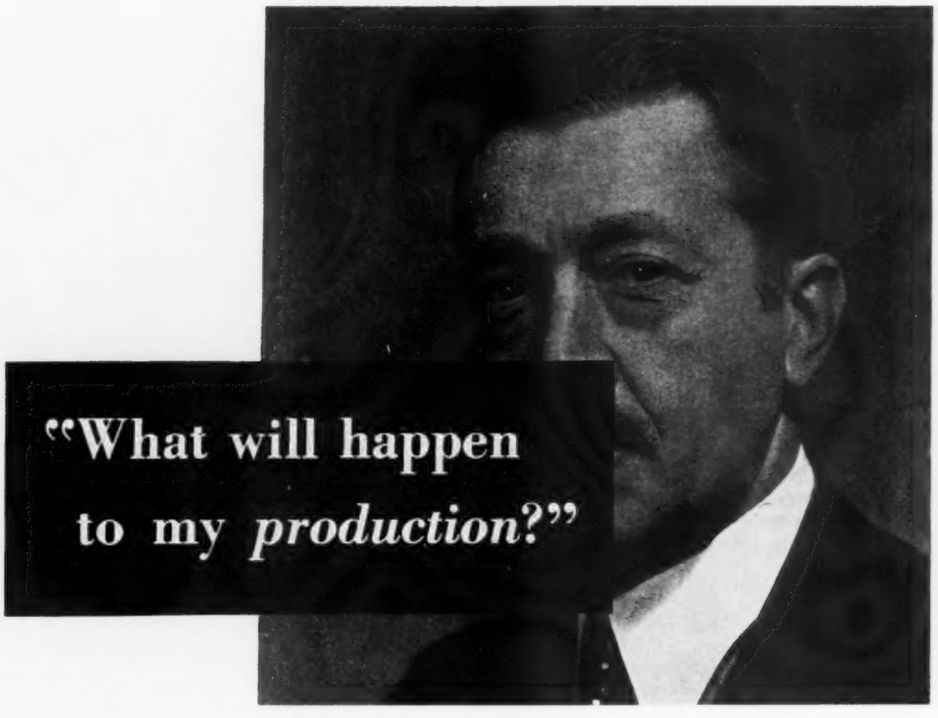
"The Methods of Cellulose Chemistry"

Under this title, D. Van Nostrand Company, Inc., 250 Fourth Ave., New York City, have recently published a new book by Charles Doree, head of the department of chemistry, Chelsea Polytechnic, London. Its main chapter headings are Normal Cellulose, Synthetic Derivatives of Cellulose, and The Investigation of Cellulose Compounds.

The author explains that during the past fifty years, methods evolved for the experimental investigation of cellulose in its various aspects—as a chemical substance, as a structural colloidal unit and as a primary constituent of plant cells—have appeared in various publications on cellulose research. The

LOWER COSTS WEREN'T ENOUGH FOR *this* MILL SUPERINTENDENT



CERTAINLY he wanted to save money! *Anyone* would be interested in lowering costs 60%. But he wondered if that was the *only* advantage Armstrong's Seamless Cork Cots could offer.

So we gave him these facts about production yield and yarn quality: Armstrong's Seamless Cork Cots have increased production from 2 to 4% in many mills. The increase is usually the result of a stronger, more even yarn. Mill men themselves will tell you this.

Having a uniform drafting surface that is free from seams, these cork cots run longer between buffings than ordinary covers. They are affected less by humidity and hard ends. Lap-ups are greatly reduced. There is less clearer waste. Eyebrows are practically eliminated.

The sum total of these factors means better running work, fewer roll changes, fewer piecings, and a reduction of slubs in the yarn. The natural result is increased production and better quality yarn.

These advantages plus the fact that roll covering costs are cut 60%, explain why more than six million spindles are now covered with Armstrong's Seamless Cork Cots—and the number is increasing as fast as replacements will permit.

We do not ask you to take these assertions on faith. Try out Armstrong's Seamless Cork Cots in your own mill. Compare them with other rolls—of any material. Then judge! Meanwhile send for your copy of "The Facts About Armstrong's Seamless Cork Cots" which tells what other mills have found out. Just fill in the coupon below.

Armstrong's (A) *Product*

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SEAMLESS CORK COTS

For Spinning and Card Room Rolls

Armstrong Cork & Insulation Co.
923 Arch Street, Lancaster, Penna.

I would like to know how I can prove these savings in my mill. Please send me without obligation your book, "The Facts About Armstrong's Seamless Cork Cots."

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purpose of the present volume is to give full working details of a selection of the best methods required in each section of the subject, and to illustrate the use and applications of the methods by full abstracts of original investigations in which they have been employed. The book is designed to be useful to the student doing research in the wide field offered by cellulose and the substances associated with it in the plant world, and also to workers in laboratories controlling and investigating the manufacture of cellulose products.

The price of the book is $7.00 per copy, and copies may be secured direct from the publishers or through Cotton's book department.

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"Encyclopedia of Cotton Fabrics"

The fifth edition of "Encyclopedia of Cotton Fabrics", by Walter Hough, has just been published by John Heywood Ltd., Deansgate, Manchester, England. The purpose of the book is to supply, in condensed form for reference, brief descriptions of various cotton fabrics. In the new edition, which contains 84 pages, a number of new cloths have been added to the list and the descriptions of some of the older cloths amplified or amended. In addition to the listings of cloths, the book gives also information on yarn calculations, ply yarns, cloth analysis, calculations for colored goods, and a description of cloth contracts. Copies of the book, the English price of which is three shillings six pence per copy, may be secured direct from the publishers or through Cotton's book department.

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New Soaking Process for Rayon Crepe

The rapidly increasing popularity of rayon crepe has resulted in considerable research to develop more efficient soaking materials for the production of this type of yarn. The research staff of E. F. Houghton & Company, Philadelphia, Pa., has recently developed a new soaking process known as the Raylubric process. They state that, "the results of many tests have shown that it is desirable to use two products in the soaking bath. The first is a softener which lubricates the fibers and prevents the filaments from breaking while being twisted. This softener aids in the production of a soft, supple rayon yarn and also adds a certain amount of weight to offset the winding and spinning losses. The second material serves as a size which binds the filaments together and assists in setting and holding the twist. It also increases the tensile strength of the yarn, and thereby prevents it being stretched beyond its elastic limit."

It is pointed out that the Raylubric process may be used in standing baths with only small additions before each new lot is soaked. It is stated that the sizing material used in this process has also been very successfully applied to the sizing of rayon warps.

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Pontamine Fast Orange RGL

The dyestuffs division of E. I. du-Pont de Nemours & Company, Wilmington, Del., has announced the development of Pontamine Fast Orange RGL, a direct color which is expected to find its greatest use in dyeing cotton and rayon piece goods and yarns for tapestries, draperies and similar materials requiring excellent light fastness. The new dye differs chemically from other offerings and in shade is between Pontamine Fast Orange 2GL and Pontamine Fast Brown 4GL. It is said to be very fast to light, perspiration and washing, and may be dyed on cotton and rayon in all forms.

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Thermostatically Protected Motors

A completely self-protecting motor which, it is pointed out, cannot burn out and yet carries overloads as long as the motor itself is not in danger, has been announced by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. A small disc type thermostat mounted on the motor frame, opens the circuit when the motor gets too hot and connects it again after the motor has cooled. Because the thermostat is arranged to accurately gauge the temperature inside the motor, it lets the motor work as long as possible regardless of service conditions but removes it from the line when the temperature approaches a damaging value. The thermostat's operation depends upon a combination of the actual motor frame temperature and the line current through the motor. At each load up to the pull-out point of the motor, there is a definite length of time required for the motor to reach the temperature which causes the thermostat to open its contacts removing the motor from the line. The higher the overload the sooner the motor disconnects itself. The motor even takes into account different ambient temperatures, carrying a given overload longer in a cold room than in a hot room.

The thermostat has but one moving part, consisting of a circular bimetallic disc, which buckles at definite temperatures, opening a multiplicity of contacts at a predetermined temperature and closing them when the disc cools down. This action occurs when the disc itself reaches its operating temperature, regardless of how the heat is supplied.

1933 Textile Color Card

Fourteen new colors for summer have been released to members of the Textile Color Card Association, 200 Madison Ave., New York City, in advance swatch form, it was recently announced by Margaret Hayden Rorke, managing director. The 1933 summer card portraying these shades is in preparation. This special collection includes highlights of the Paris openings and confirms as well other recent color developments in fashion. It is explained by Mrs. Rorke that while these summer shades were entirely different in tempo from the colors portrayed in the 1933 spring season cards, they in no way lessened the style value of the latter.

Significant among the new shades are three hazy tints with a pearly glow, appropriately named Nacre Grey, Nacre Blue and Nacre Beige. Yellows, increasingly important for sports and evening wear, are interpreted in two new shades. Sun Yellow is a radiant sunlight hue, while Liqueur Yellow, as its name implies, reflects a cool greenish cast. The two new blues further confirm the leadership of this color family in the summer mode. Robin's Egg Blue, with a hint of green, is a smart new version of turquoise. Bali Blue suggests the clear intense blue of tropical skies.

Of high fashion interest in the pink gamme is Parfait Pink, the deep luscious color of strawberry ice cream. Apricot Pink is a lighter fruit shade with a yellowish undertone. Camellia Red reflects the rich rosy red of the flower by that name. Brilliant sharp colors, to be used alone or in combination with white, will also figure prominently in summer fashions. These include Chili Red, an animated sports shade, and Blarney Green, a vibrant Irish hue.

Completing this new group of colors are two attenuated shades, Wheat Beige, a pale yellowish tone, and Skymist, a light summer grey.

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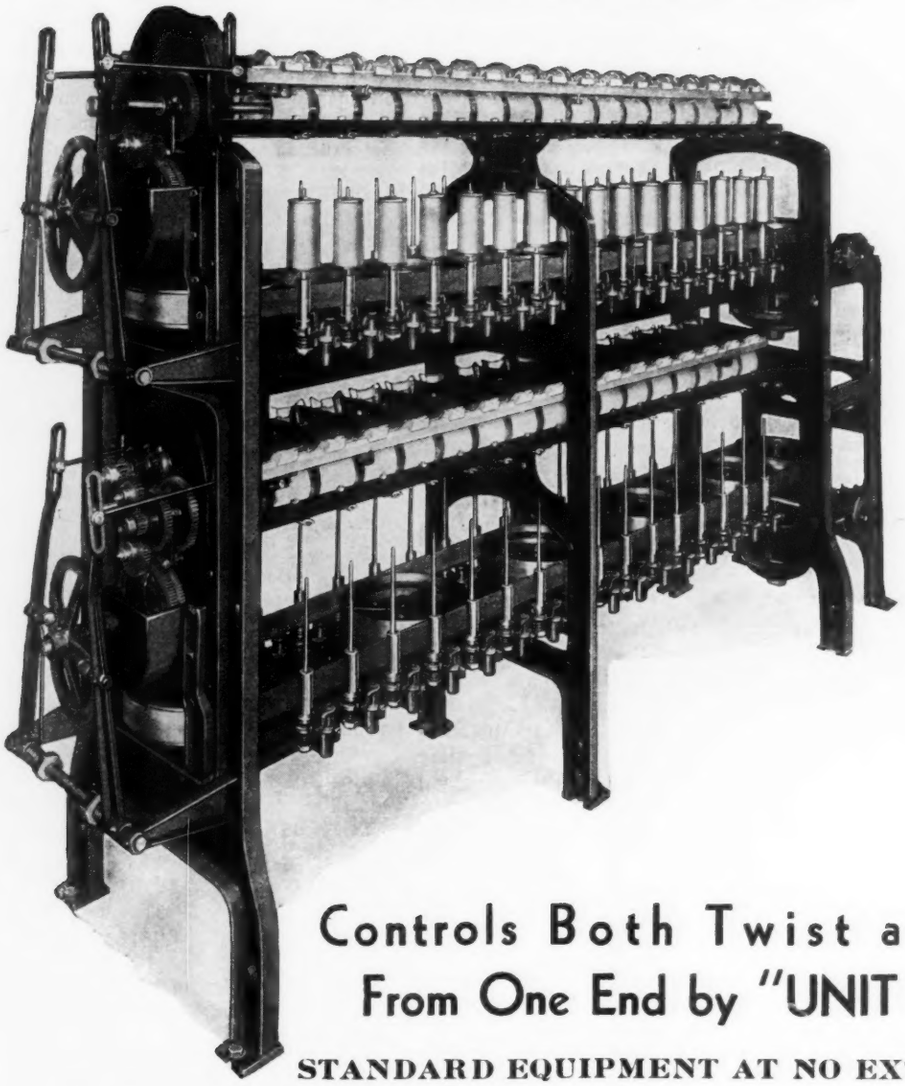
Clemson Textile Students Awarded Fellowship

The Textile Department at Clemson College, S. C., has been awarded a fellowship by the Glyco Products Company, Inc., of Brooklyn, N. Y., makers of thickening and emulsifying agents, synthetic resins, glycol and glyceryl products, and foam producers. For this school year the fellowship has been awarded to M. L. Huckabee and C. D. Wyatt, students at the department, who will conduct studies with a view to finding new and extended uses for the products of the company.

FLETCHER Model 33 TWISTER



A typical example of Fletcher construction superiority. Designed to facilitate production and to effect major power economies, this Fletcher development wins favor everywhere, even under the most exacting conditions.

The "Unit Control" is compact and self-contained, controlling both twist and traverse from one end. It is positive in action, conveniently located, and helps to promote cleanliness which is a characteristic of Fletcher throwing machinery.

Controls Both Twist and Traverse From One End by "UNIT CONTROL"

STANDARD EQUIPMENT AT NO EXTRA COST

1. "Oilwell" Spindles

Standard Fletcher equipment fitting any type of Silk or Rayon Twister. Reservoir contains One Year's Supply of Cool Clean Oil, spindles always properly lubricated without over oiling.

2. Power Saving Idlers

The large diameter idler pulleys run at slow speed, with belt pressures from both sides neutralizing each other, resulting in a sizable saving in power.

3. Adjustable Swings

Easy and accurate adjustment of the spindle swings affords proper belt contact and uniform spindle speeds.

4. Individual Motor Drive

Each deck is driven by an individual motor, making each deck an independent unit.

Motors are mounted on an adjustable base, with a flexible automatic belt take-up.

FLETCHER

THROWING MACHINERY FOR SILK AND RAYON - - CENTRIFUGAL EXTRACTORS - - NARROW FABRIC LOOMS

FLETCHER WORKS • GLENWOOD AVENUE AND SECOND STREET • PHILADELPHIA

FORMERLY SCHAUM AND UHLINGER - ESTABLISHED 1850

VISIT OUR EXHIBIT BOOTHS 120-121, KNITTING ARTS EXHIBITION, APRIL 24 TO 28, 1933

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Artificial Light Is Better

Artificial light is actually better than daylight on the basis of good seeing conditions, according to Westinghouse Lamp Company engineers. In factories and offices particularly, the advantages of artificial light come to the fore. During the day, sunlight changes in color, direction, and intensity, resulting in conditions that produce a strain on workers' eyes. Under similar applications, artificial light remains constant. Because of this difference, lighting engineers have been advocating artificial in preference to natural lighting for a number of years. Already a factory has been constructed without windows, and several offices built after the design.

It is common knowledge that direct sunlight is too intense for comfortable reading. The same is true in painting, hence the reason artists and photographers prefer "north light", the reflection from the north sky. It is indirect and diffused.

It is possible with modern lighting equipment to control artificial light so that it simulates "north" light. The reflection breaks up the particles of light and makes soft illumination, protecting eyesight.

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Cheney Succeeds Thompson on Textile Foundation

Frank Dexter Cheney, of New York City, whose appointment as Director of the Textile Foundation to fill the unexpired term of Henry B. Thompson, resigned, was recently announced, comes to the Board well fitted for his new responsibilities. Since graduating from Yale in 1900, Mr. Cheney has been connected with the silk firm of Cheney Brothers in South Manchester, Conn., and New York City. He has been manager of their dyeing, printing and finishing work in Connecticut, and since 1919 has been general sales manager of the Cheney organization. During these years he has given special attention to various phases of scientific and economic research involved in production and merchandising problems. In addition to his more intimate business connection, Mr. Cheney has devoted much time to public service. During the war he was a member of the Connecticut State Council of Defense, and also served as a member of the Dye Advisory Committee of the War Trade Board.

Demonstration of Modern Lighting at Clemson

The textile department at Clemson College, S. C., has recently installed several modern lighting units. The installation of glassteel diffusers in the carding and spinning department was made possible through the co-operation of the Wheeler Reflector Company, Benjamin Electric Co., Kentucky Lamp Company, Ivanhoe Company, Abolite Reflector Company, and the General Electric Company. The weaving and designing division has been equipped with mercury vapor lamps manufactured by General Electric Vapor Lamp Company.

On Friday, March 10, the different requirements for the respective divisions of a textile manufacturing plant, as regards lighting, were explained in detail to the Clemson textile students by R. H. Witherspoon, Wheeler Reflector Company, Atlanta, Ga.; A. G. Stanford, Robert & Company, Engineers, Atlanta, Ga.; G. E. Park, General Electric Company, Charlotte, N. C.; and Frank E. Keener, General Electric Vapor Lamp Co., Atlanta, Ga. A number of out-of-town visitors heard these talks and inspected the new lighting system of the Textile Department and the fancy fabrics made by the Clemson textile students.

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Towle With W. & G. 30 Years

F. R. Towle, treasurer and general manager of the Willcox and Gibbs Sewing Machine Co., 656-658 Broadway, New York City, recently celebrated the 30th anniversary of his connection with the company. The executive staff of the company presented him with a beautiful sundial, and the felicitations of the entire organization were extended to Mr. Towle. Mr. Towle's connection with the sewing machine industry has witnessed many important changes and advancements in this particular branch of the textile industry.

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Durene Plans for Cotton Week

E. L. Starr, director-treasurer of the Durene Association of America, 250 5th Avenue, New York City, recently announced that organization's intention to co-operate extensively with plans for National Cotton Week, May 15 to 20. Mr. Starr said that the Durene Association is planning to support in every way possible the Cotton Week plans and activities of the Cotton Textile Institute. The Durene Association is at work in supplying stores throughout the country with merchandise and merchandising suggestions for National Cotton Week. It is providing merchandise managers and other retail executives with general information and direct sources of supply for durene cotton fabrics, garments, accessories, and household products which may be most advantageously promoted during Cotton Week. Advertising and promotional suggestions are also being made. A surprisingly good response from stores is resulting.

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"The Story of a Co-operative Farm Plan"

Operation during 1932 of its industrial co-operative gardens, believed the largest project of its type in the country, and discussion of extension of the program during 1933 are contained in a 24-page volume, titled "The Story of a Co-operative Farm Plan" just issued by The B. F. Goodrich Company, Akron, Ohio.

Frank discussion of the problems involved in such a plan, costs of the operation, and results are concisely given.

T. G. Graham, Goodrich vice-president, tells in a foreword of discussions on how the company could best assist former and part-time workers who were anxious to utilize idle time, resisting to the last the necessity for placing their families on charity rolls.

"Out of the discussion came the decision that a project was required which would provide 150,000 man-hours of work during the summer months and assure the participant as great a reward as possible," Graham says.

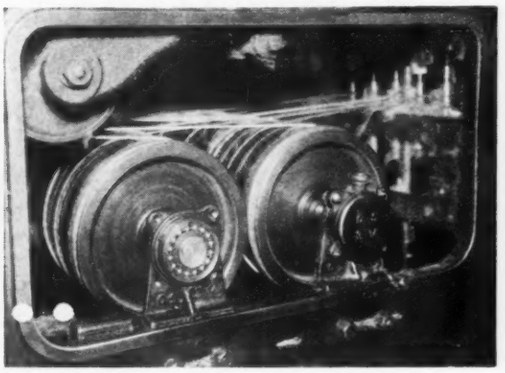
"A co-operative farm operated on mass production principles seemed the most practical solution of our problem, so our industrial gardening experiment embracing about 200 acres of vegetable planting was started.

"It was recognized that those we wished to help had extremely limited, or no buying power, so that established producing and marketing facilities would not be disturbed if a plan was evolved by which the men consumed what they produced and created no surplus for sale or barter.

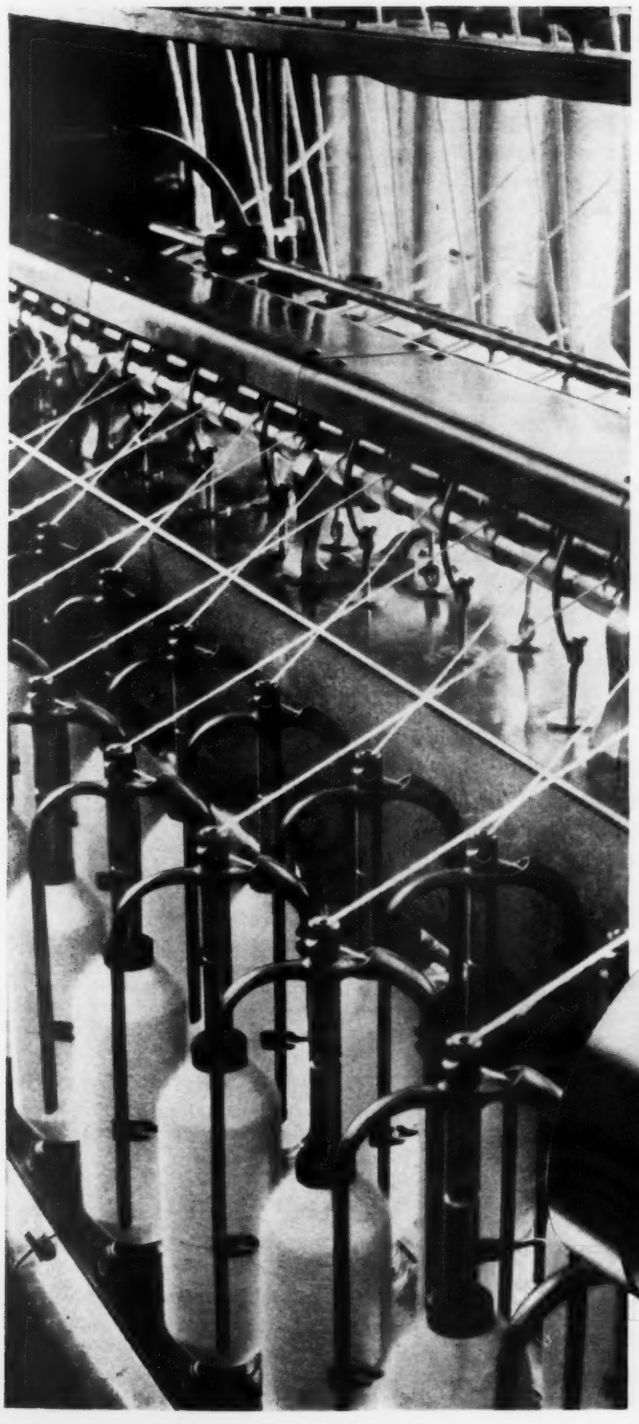
"This project provided over 1,000,000 pounds of vegetables for 900 workers and their families during 1932, the head of the family being rewarded in proportion to the hours worked by him on the project."

Executives in any industry, federal, state, county and city officials, welfare workers, economists and grange leaders may obtain copies of the volume by writing to The B. F. Goodrich Company, Akron, Ohio.

Section of spinning frame equipped with SKF Bearings 25 years ago. The frame with the original bearings still functions, and without showing appreciable signs of wear, is still in operation.



25 YEAR OLD SKF BEARINGS.

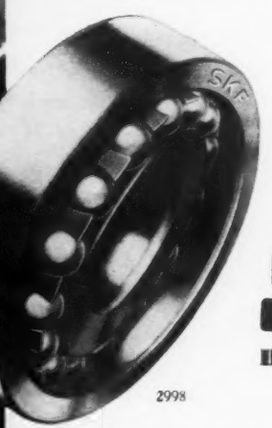


...performance that SMILES at price tags!

Here's a close-up photograph of one of the first SKF Bearings that was ever produced, taken at the end of a quarter century of performance in a fast running, hardworking spinning frame . . . a bearing that is almost as old as SKF itself and yet that hasn't even *begun* to show its age.

From the very outset SKF has manufactured *up* to a definite standard of quality rather than *down* to a price. The basic SKF policy has been to create the *finest* rather than the *cheapest* bearing it knew how to produce. For years SKF Bearings were sold in the face of competitive prices that were a real temptation to any man to take a chance on an inferior bearing.

Today, however, SKF brings to the bearing field a competitive factor that merely smiles at price tags . . . the factor of outstanding performance in all branches of industry for periods which no other bearing has even approached. And now...bearing buyers smile at price tags, too.



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SKF INDUSTRIES, INC.
40 East 34th St., New York, N. Y.

SKF
BALL & ROLLER BEARINGS

A promise is ONLY a promise
... Performance is History

PERSONAL NOTES

about Men You Know

FRANK B. WILLIAMS, superintendent of the Fairfax Mill Division of the West Point Manufacturing Co., at Fairfax, Ala., has been promoted to the position of agent of all of the company's mills, including, in addition to Fairfax, the Langdale, Riverdale, Lanett and Shawmut plants. His new headquarters are at the main office of the company at West Point, Ga. This position was formerly held by the late L. LANIER, until his death several years ago.

JOE L. JENNINGS, who has been assistant superintendent at Fairfax, has succeeded Mr. Williams as superintendent, and LEE TILLERY is assistant superintendent. JOE L. LANIER continues as assistant to the president of the West Point Manufacturing Co., GEORGE H. LANIER.

C. H. SANDERS has become overseer of weaving at the Toxaway plant of the Gossett Mills, Anderson, S. C.

L. E. TAYLOR, of the National Ring Traveler Company, has transferred his headquarters from Charlotte, N. C., to Atlanta, Ga., and is in charge of the Georgia, Alabama, Mississippi, Louisiana and Tennessee territory for the company. His address is Box 252, Atlanta, Ga.

M. B. (PAT) MULLIS, formerly superintendent of the Nebel Knitting Mills, Charlotte, N. C., has become sales representative for The Arkansas Company, manufacturers of textile chemicals, New York City. Mr. Mullis' headquarters are in Charlotte.

HENRY ROBINSON, assistant superintendent of the Columbus Manufacturing Co., Columbus, Ga., is now also overseer of carding, succeeding J. E. Batson who has retired.

L. G. MOSS has been promoted to general overseer of carding and spinning in Mills No. 2, No. 3, and No. 4, Mooresville Cotton Mills, Mooresville, N. C. D. Stiles has been promoted to general second hand in carding and spinning at night in the No. 2 mill. C. A. Vanderford has been promoted to second hand in carding at the No. 3 Mill.

S. B. LAWS, for the past several years superintendent of the Gray plant of Textiles, Inc., Gastonia, N. C., has become general superintendent of the Green River Mills, Inc., Tuxedo, N. C., and the Pisgah Mills, Inc., Brevard, N. C., succeeding J. O. Williams, resigned.

B. B. HAYES has been made assistant secretary and treasurer and superintendent of the Lenoir, Whitnel and Nelson Cotton Mills, Lenoir, N. C., succeeding S. H. SHERMAN, resigned. Mr. Hayes remains in a similar position at the Moore Cotton Mill, Lenoir, and the Caldwell Cotton Mills and Hudson Cotton Mfg. Co., at Hudson, N. C.

R. B. BETTS, master mechanic, Columbus Manufacturing Co., Columbus, Ga., has been made chief engineer, and TOM CAMERON has been promoted from shop foreman to master mechanic. FRED WOMACK is now shop foreman.

C. B. WALL has become superintendent of the Aponaug Mfg. Co., West Point, Miss. Some time ago Mr. Wall was overseer of carding and spinning at the Social Circle Cotton Mills, Social Circle, Ga.

J. B. HOTHERSALL has resigned as superintendent of Dilling Silk Mills, Kings Mountain, N. C.

J. B. BAXTER has resigned as general overseer of spinning at the Chester plant of Aragon-Baldwin Cotton Mills, Chester, S. C.

H. A. LIGON and JOHN A. LAW, of Spartanburg, S. C., have been appointed permanent co-receivers for Arcadia Mills, Spartanburg, S. C., which had been operating under temporary receivership.

M. B. HITE has been made president of the Pickwick Hosiery Mills, Thomasville, N. C.

R. H. MURRAY has been made assistant superintendent of the Tupelo Cotton Mills, Tupelo, Miss.

Obituary

DANIEL EFIRD RHYNE, of Lincolnton, N. C., one of the pioneer cotton manufacturers in the South, died on February 25th following an illnes of pneumonia. He was 81 years of age. "Uncle Dan", as he was affectionately known, was one of the most successful manufacturers of his time. At the age of 21 years he built his first mill, later building and buying other plants, having been interested in the management of a large number of textile and other establishments. He started his career in Mount Holly, N. C., with his brother, A. P. Rhyne. At the time of his death he was president of the Howell Manufacturing Co., Cherryville Manufacturing Co., Rhyne-Houser Manufacturing Co., and Wildan Mfg. Co., of Cherryville, N. C.; the Henry River Manufacturing Co., Henry River, N. C.; and the Laboratory and Lincoln Mills, Lincolnton, N. C., and was a large stockholder and director in several combed yarn plants in Gastonia and Belmont, N. C. He was also president of the First National Bank at Lincolnton and the First National Bank at Cherryville. Mr. Rhyne was extremely generous in his contributions to religious and educational institutions, having contributed more than a half million dollars to Lenoir-Rhyne College.

C. B. HAGOOD, president of the Glenwood Cotton Mills, Easley, S. C., and the Pickens Cotton Mills, Pickens, S. C., ended his life on February 22nd. He had been seriously ill for some time.

WILLIAM H. TRAFTON, vice-president of the American Moistening Co., Providence, R. I., passed away in January.

J. PERRY BURRUS, one of the original founders of cotton mills in Texas, and managing director of the Waxahachie Cotton Mills, Waxahachie, Texas, and the Brazos Valley Cotton Mills, West, Texas, passed away in February.

Machinery which pays for itself in a fraction of its operating life renders old equipment obsolete.

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250,000 Spooler Spindles

and

2,200 Warpers

have been replaced as

OBSOLETE

by the

BARBER-COLMAN
SPOOLING AND WARPING
SYSTEM

▼

BARBER-COLMAN COMPANY

General Offices and Plant ROCKFORD, ILLINOIS

GREENVILLE, S. C. FRAMINGHAM, MASS.

REPEAT ORDERS

BASED ON

PROVEN PERFORMANCE

The "Monarch" Twister for Silk and Rayon

Introduced in 1930, the "Monarch" won instant favor.

Most early purchasers have already reordered —some of them eight different times.

70% of all "Monarch" sales have been to customers who have already placed repeat orders.

The "Monarch" has been tested, proven and reordered

ATWOOD

THE ATWOOD MACHINE COMPANY, STONINGTON, CONN.

FOUNDED 1852

Sales Offices: New York **Wilkes Barre, Pa.** **Stonington, Conn.**

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ATWOOD MACHINES THROW THE BULK OF AMERICA'S SILK AND RAYON

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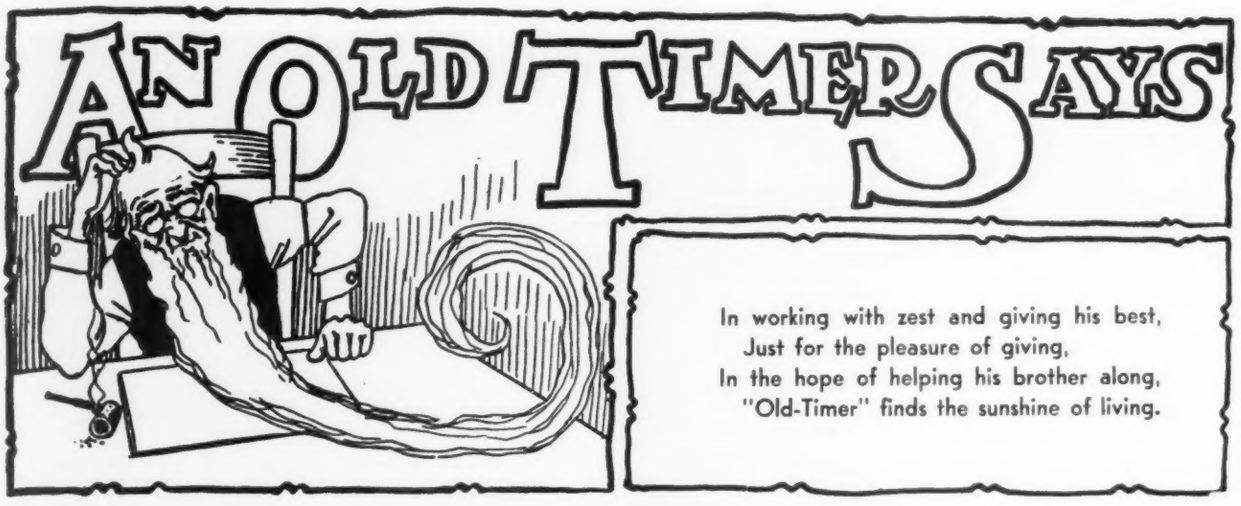

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

The Story of Old Timer's Methods of Working and Management

Part Eleven—Continued from March Issue

IN this series Old-Timer and Jim have to date covered the opening and picking, carding, spinning, and warp preparation, and we find them now in the slasher room in their trip through the mill. There is something of interest to each type of mill man in the different installments, past, present and future. If you want copies of those that have already appeared, let us know.—The Editor.

(Note: Since this series is written in conversational style, it should be borne in mind that those paragraphs in regular type represent OLD-TIMER's part of the conversation, and those in *italics* are JIM's part.)

How much steam does a slasher take, OLD-TIMER?

That depends, JIM, on many local conditions; how the slashers are housed or exposed to outside drafts; whether the cylinders are insulated or not; the number of ends you are running; the speed of slashers, etc. Anyway, JIM, I'll give you the results of our last test and that will give you some idea at least. (See Fig. 1.)

We were running so-called print cloths ranging from 56x44 up to 80x92 and using 28½s to 30s warps.

The amount of steam per slasher shown on this test is probably less than on slashers where a mill only has one or two slashers. This test was made on a large installation of slashers, and naturally would be more economical than would be a small installation.

Another item to consider is: This test was made in summer, while in winter the consumption of steam per slasher will usually run much higher.

You will note that the steam consumption is higher at starting time and lowest during the noon hour, when little or no boiling is going on in size kettles.

Now notice the big jump in steam consumption for afternoon of June 24th. This was caused by a rain and wind-storm that came up, which naturally lowered outside temperatures, and likewise, had a cooling effect on cylinders.

It should be noted that in case of condensation returned to boilers, the only reliable figure is the average. Because the figures vary from hour to hour and lags the operation of the slashers, and it is therefore impossible to draw any definite conclusions.

In Fig. 2 are given the detail readings from which the information in Fig. 1 was secured. The flow was measured by a Gebhardt manometer; condensate measured in two 50-gallon tanks.

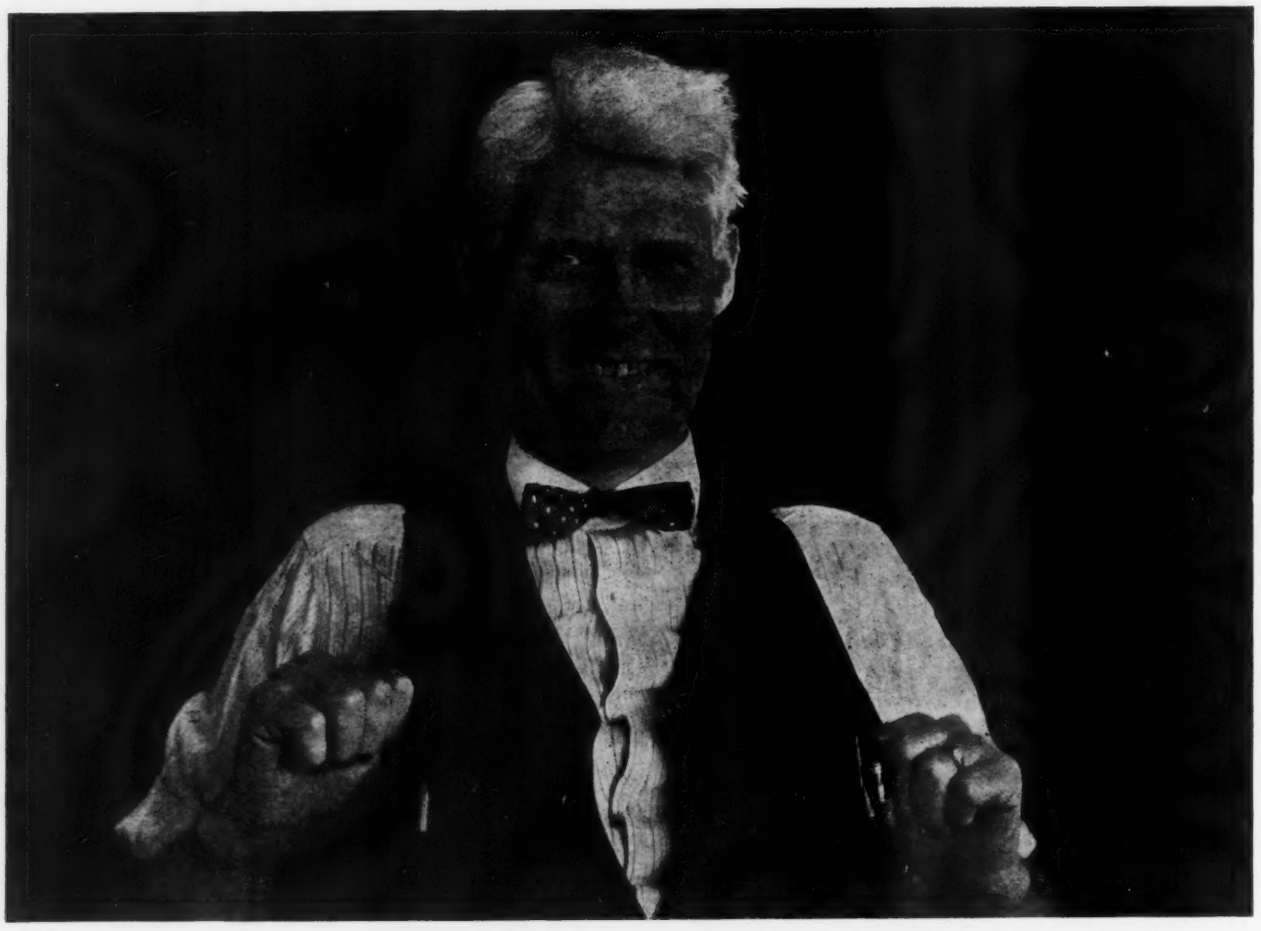
It will be noted that the amount of steam going through the flow meter to all slashers is 50 per cent to 60 per cent greater than the condensate taken from slashers.

10 Slashers.

Hourly results	Average slashers running	Total steam, lbs.	H. P. per slasher	Condensation returned to boilers		Temperature of mixing kettles	4" Steam pressure gauge	Supply Temp. F°
				Pounds	%			
June 24, 3 to 4 PM.	9	4400	16.3			210	60	342
5	8	4510	18.8			184	59	347
6	8	4830	20.2			210	56	348
June 25, 7 to 8 AM.	9.8	5505	18.7	3550	64	162	54	320
9	8.6	4525	17.8	2850	63	214	59	316
10	7.7	4217	16.5	3100	73	204	61	318
11	9	4458	16.6	3300	74	204	59	322
12	9.1	4480	16.4	2650	60	196	60	324
1 PM.	10.	4464	14.9			171	60	327
2 PM.	10.	4900	16.3			182	57	329
	8.92	4629	17.2	3090	66.8			

Slashers on 30s and 28½s speed 30 yards minute. Steam pressure in cylinders No. 10 to 4 lb. Gz. Steam flow meter in 4-inch supply main, condensation measured, records of each slasher starting and stopping, temperature mixing kettles read every five minutes.

Fig. 1.



"No More LOOM DANDRUFF For Me"

"I laughed when that Foxboro Textile Engineer first told me about 'Loom Dandruff' but I'm happy now 'cause I'm rid of the darn stuff. I never dreamed that the shedding around my looms was caused by poor slashing. But this fellow explained all about cooking the size and drying the slashed yarn, and believe me he knew exactly what to do to cut slashing costs. In fact he guaranteed *savings* so there was nothing else for me to do but let them set up a Controlled schedule on one of my slashers.

"I'll have to admit that I was a little skeptical about the thing so you can imagine my surprise when we got the following results:*

"A 15% increase in slasher speed.

"A 12% decrease in steam used.

"A 10% actual increase in production.

"A 35% decrease in breakage on looms.

"You can just bet that I equipped my other slashers with the Foxboro Control system as soon as I could.

"If you want to find a sure way to cut your costs, just talk it over with one of those Foxboro Engineers."

*These results from an actual case are fully described in our folder No. 612-T. Write for it today.

FOXBORO
REG. U. S. PAT. OFF.
THE COMPASS OF INDUSTRY

THE FOXBORO COMPANY, FOXBORO, MASS., U. S. A.

Time	Condensate Reading in inches condensate		Tank constant	Gallons
8:00	0			
8:30	10			
8:45	16			
9:00	22.1			
9:15	27			
9:30	32.2	X	1.67	54.3
9:45	5			
10:00	8.3			
10:15	14.2			
10:30	20			
10:45	25			
11:00	29	X	1.50	43.5
11:15	5.2			
11:30	10.2			
11:45	16.1			
12:00	21.3			
1:00 P.M.	33	X	1.67	55.6
1:00 P.M.	9			
1:15	14	X	1.50	69.1
1:30	18			
1:45	21.2			202.5
2:00	27			
2:15	24	X		

Time	Steam Pressure	Manometer Reading or Steam Going to Slashers
7:30	80	200
8:00	70	520
8:15	70	485
8:30	70	560
8:45	73	475
9:00	70	525
9:15	70	555
9:30	70	630
9:45	70	545
10:00	70	470
10:15	70	460
10:30	70	510
10:45	70	465
11:00	70	530
11:15	70	470
11:30	70	485
11:45	70	520
12:00	70	520
1:00	70	560
1:15	70	585
1:30	75	500
1:45	70	500
2:00		490
2:15	70	490
2:30	70	445
2:45	72	450
3:00	70	550
3:15	74	490
3:45	73	450
4:00	75	430
4:15	70	480
4:30	72	480
5:00	70	495
		492 Mean

(Formula (Gebhardt (Manometer) $\frac{202.5 \times 60 \times 62.4}{375 \text{ C} \times 7.48} = 271$ pounds hour

492 × 10.3 (Pipe constant) = 5067 lbs. Hr. ÷ 10 = 506.7 lbs. steam per hour per slasher. This is simply an average figure and does not take into account that practically not for any length of time were all the slashers in full operation.

$\frac{271}{506.7} = 53.7$ per cent of steam condensed.

Fig. 2.

This establishes the fact that in estimating steam consumption for slashers practically 50 per cent of the steam consumption is taken up in cooking size and keeping it hot in size boxes and storage kettles.

The horse power per slasher, however, still shows the required horse power for a slasher because the figures in that column were arrived at by measuring the condensate. A pound of steam will make a pound of condensate unless there is leakage somewhere.

Where there are only one or two slashers we usually say that it takes the amount of steam to run a slasher that it would take to run a 20 hp. non-condensing steam engine.

Cooking and keeping size hot or boiling in the size box will take almost this much more.

As the slashers are the greatest consumers of steam in a cotton mill, excepting the power plant, they should have much more attention than they get at the average mill.

When have you tested yours, JIM?

Humph! never heard of it. What you test them for, anyhow?

Well, for the love of Mike, have I gone through all this mess for nothing? Have you been asleep again? Didn't you hear me say that a slasher takes more steam—

Oh yeah, I heard that, but what are you going to do about it?

Well, I wouldn't exactly advise you to go ask your boss, JIM, but if your mechanic can't advise you, then pay some good mechanic (out of your own pocket) to come over and talk it over with you. He can probably, yes, very likely, show you some things that will save you a nice little pile of coal, and, incidentally, make your profits (if any) show up considerably more at the end of the year.

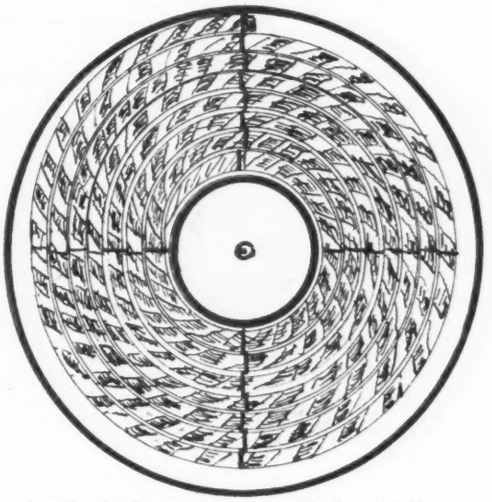
Say, OLD-TIMER, *what in dickens makes those rubber frictions cost so much? We had one to give out a few weeks ago and I just put in an order for a half dozen of the blamed things and, holy smoke! they charged $5.00 apiece for them. The treasurer asked me how many of them we used a month; he said he did not remember having paid any bill for frictions before. Well, I had to confess to him that that was the first one we had had to give out in the four years I had been here, and then he said everything about a man knowing something about what he was ordering, etc. In fact, he did everything but call me a fool, and I know he meant that, so I thought it best not to say very much, as he seemed to be kind of excited and wanted to do all the talking. Then he used the good judgment by sending the five frictions back, and I am just waiting until one of the darn things gives out again so I can go out and make him look like a fool.*

No, JIM, I would not do that. You know if a lot of overseers and superintendents would spend the time trying to improve their jobs that they spend trying to think up some little mean way of "getting back" at somebody, they would be much better off.

Yeah, OLD-TIMER, *I think you had better include a pretty good bunch of the office force in that statement. But what in heck am I going to do, put in another order and have him send for me and ask another bushel of questions, or wait until one gives out and then tell him that I have a slasher stopped?*

Yes, JIM, wait until another one gives out, but don't go running out to the office with that I-told-you-so expression on your face, but simply take a piece of half-inch cotton rope, coil it around in the friction holder and start up your slasher.

While coiling the half-inch rope in the friction it is advisable to tie the coils together with a piece of



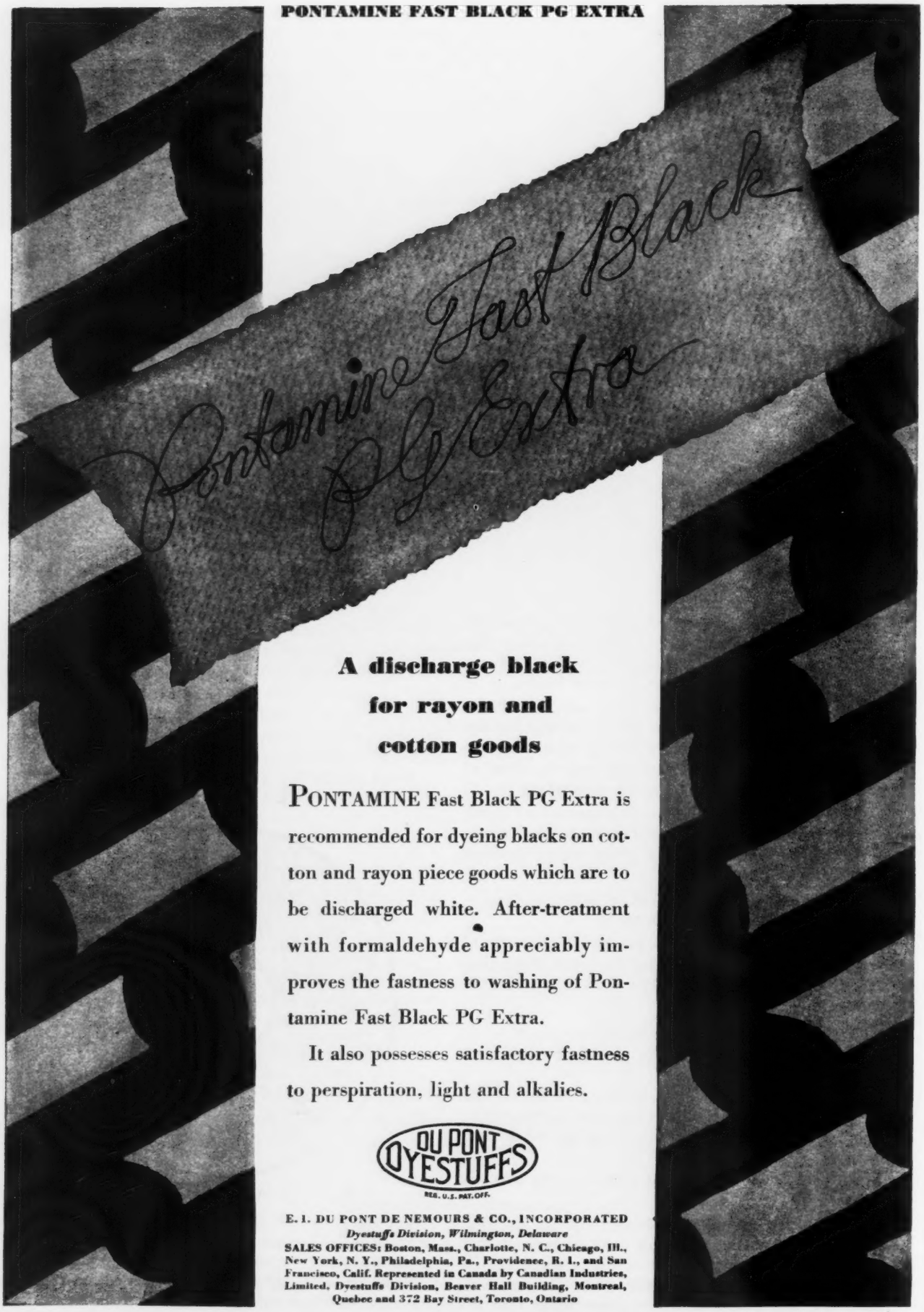
Method of coiling rope in slasher friction.

strong twine to hold them in place while you get the friction back together. (See sketch.)

Humph! and I'll bet it would not last until—

Hold on, JIM, our slasher man has cotton rope in his frictions which have been running three years, day

PONTAMINE FAST BLACK PG EXTRA



A discharge black for rayon and cotton goods

PONTAMINE Fast Black PG Extra is recommended for dyeing blacks on cotton and rayon piece goods which are to be discharged white. After-treatment with formaldehyde appreciably improves the fastness to washing of Pontamine Fast Black PG Extra.

It also possesses satisfactory fastness to perspiration, light and alkalies.

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E. I. DU PONT DE NEMOURS & CO., INCORPORATED
Dyestuffs Division, Wilmington, Delaware
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and night, which is equivalent to six years day run, isn't it?

Well, I'll go you one better, OLD-TIMER. *I'll not wait until a friction gives out. I'll put a half-inch cot-top rope in one tomorrow and that will give me a spare friction; then if Mr. Rope don't give satisfaction I will have my friction to put back.*

Okeh, JIM, but you will have no cause to ever order another friction.

(In the next installment, Old-Timer gives Jim some very practical "kinks" and ideas for improving slasher room efficiency. Have you kept the ten previous installments of this series? If you want clippings of them let us know.—The Editor.)

Atlanta Carding-Spinning Discussion

(Continued from page 26.)

question, which asked for experiences with cork rolls in the spinning room. He said, "We completed our spinning installation of cork rolls about a year and a half ago. We run the cork six months before re-buffing. (Day and night operation.) After they have been rebuffed twice, we have a little trouble on Monday mornings with ends down. The cork doesn't seem to have the cushion it should then. At first, though, we put the cork on the arbor without cutting it down, and recently we have been experimenting with cutting the arbors down. I believe this will get us away from the Monday morning trouble.

"So far as cost is concerned, I believe cork reduced our cost at least 45 per cent; we were using calf skins."

Cork Rolls in the Spinning Room.

Frank H. Cooper of Fulton Bag was asked for his experience with cork rolls on 35s warp, and he said he does not like them on numbers in this range. He said they decrease the breaking strength, and increase the ends down about 25 to 30 per cent; that he determined these facts by running exhaustive tests, eliminating all other conditions that might affect the results insofar as possible. Mr. Rogers, agent at Fulton Bag, said "I believe we reached our limit on regular draft at about 14s. Above that number we have not had any success with them, but below 14s we have effected a considerable saving in cost, trouble, etc. On long draft we are going to 20s with cork roll, and I believe it is all right there." He answered Mr. Edwards by saying that he has realized the greatest benefit from cork rolls on osnaburg yarns.

A. B. Peterson, overseer of spinning, Pacolet Mfg. Co. No. 4, next reported, stating that on their present installation of cork rolls there they had just started in the first of this year equipping their frames with cork rolls and had not had sufficient time to determine the buffing period. The question was asked as to whether it is possible to pre-determine the length of time cork rolls should run before re-buffing. Mr. Peterson said he had no way of determining this. He added that, "our numbers run from 9s to 25s, and so far the cork roll gives perfect satisfaction; we like them better than leather rolls."

Mr. Edwards reported difficulty, on cork rolls in spinning, with the flutes on the steel rolls filling up where the roving doesn't traverse. Mr. Cooper said he had not noticed this, but Mr. Rogers said he had; that a little ring forms right outside of the traverse.

W. R. Beldon reported using cork rolls up to 100s; that they are not as satisfactory as leather on fine numbers.

Mr. Edwards stated that "I believe the cork people will eventually evolve a cork and filler combination that will do the job. Right now we find an objectionable feature on spinning in that the cork fills up the flutes of the steel roll where the traverse does not operate." Mr. Elliott stated here that he understood that quite a few cork rolls are being used on numbers up to 120s.

Chairman Edwards mentioned that he has in a test installation of two different types of calf skin rolls that have been re-buffed just like cork, on the same machine; that these calf skins look like regular sheep skin when the hair side has been buffed off. He said the idea is to do the same kind of re-buffing with calf as is done on cork. Mr. Rogers asked whether it would not be difficult to buff the calf skin after it had run and gotten oil on it. Mr. Edwards said those he has were buffed before being put in the frame originally.

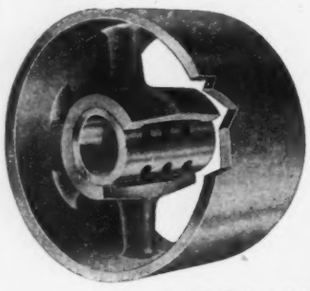
The last question on the prepared program asked, "What circle of traveler have you found best for the No. 1 flange ring? Give number of yarn, weight of traveler, and whether round or square point."

A. B. Peterson reported that, "We have some frames on 20½s warp yarn, with a 2-inch ring, No. 1 flange, and a spindle speed of 8,881 r.p.m. The weight depends on the style of traveler. If the old or regular style traveler is being used, we find that a square point ¾ circle, 8 or 9 grain traveler gives best results. There is a new style traveler on the market which is of a different shape, and with this particular style traveler, we find that a 12-grain gives the best results. This too is a square point and small circle. The weight and circle of a traveler for any particular number of yarn would depend somewhat on the condition of the rings, and the speed of the spindle."

Mr. Quillian reported that on 10s, he uses a 1 circle; and in going to 30s warp he uses a ¾ circle, and on 40s filling, a ⅝ circle. On 26s and 27s, No. 1 flange, Mr. Crowder reported a ¾ circle square point. Mr. Rogers mentioned that someone had told him that in going to long draft, he had used a tighter fitting traveler than on ordinary draft, but could not substantiate this with his own experience. No one else present mentioned having done this. Both Mr. Edwards and Mr. Quillian brought out that the circle of traveler best adapted to a condition is determined very largely by what the frame of rings was started up on; that trouble is encountered unless the traveler runs in the same "track" started on the ring. Mr. Edwards says he prefers a traveler that does not bear on the outside of the ring; that a small circle traveler will run without doing this, whereas a larger circle will have a tendency to make the traveler top-heavy and cause it to tilt in the wrong direction toward the outside.

The meeting was concluded by a brief session of informal discussion.

MOCCASIN BUSHINGS



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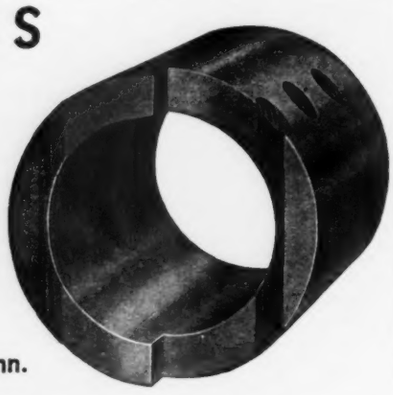
IN MANY TEXTILE MACHINES

Builders of world-known textile machinery have standardized on them for over 15 years.
We have made broad claims for the mechanical perfection of Moccasin Bushings and have yet to report our first failure.
They require the oiler's attention but a few times a year. They insure every drop of oil reaching the desired spot—the bearing. Nothing but clean oil can reach the bearing surfaces.
And finally—
Moccasin Bushings are *guaranteed* to give the fullest satisfaction in your most *troublesome bearings*.
We have an interesting Booklet that gives sound reasons for standardizing on Moccasin Bushings.



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Makers of Brass and Bronze Castings of Every Description.

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FOR ALL TEXTILE PURPOSES
Manufactured by
CLINTON CORN SYRUP REFINING COMPANY
CLINTON, IOWA
QUALITY SERVICE

SEYDEL-WOOLLEY CO.

SIZING FINISHING
WARP SIZING SPECIALISTS
SEYCO SCIENTIFICALLY PREPARED TEXTILE CHEMICALS SEYCO
A CONCERN IS KNOWN BY THE CUSTOMERS IT KEEPS—
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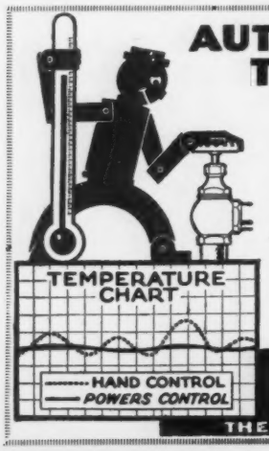

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Overhauling, Timing, Setting and Care of the Model D-2 Comber.

"R. G." gives his methods and experiences in a manner which will interest you. If you disagree on any points, tell us why . . . . . .

EDITOR COTTON:

The comber is quite a complicated piece of machinery, and a good deal depends on the upkeep and condition of this machine. The comber should be kept clean at all times; the oiling should be systemized, the comber tender oiling certain parts at a given time on certain days. The oiler should oil all slow-moving parts three times per week; all fast motions once a day. All cams should be greased once a week with a thin grease in addition to the regular daily oiling.

The feed pin disc, the star gear, the head end bearing on the brush shaft, and the carrier gear for this, should be oiled twice a day—Morning and noon.

Combers should be overhauled at least once a year, and re-gauged about every three months.

In overhauling a comber, all movable parts should be removed, such as top combs, detaching roll, lap apron, doffer and comb, connecting rods, cylinder brushes, nipper frames, waste chutes, nipper shafts, and cam shaft. All these parts should be cleaned thoroughly and all oil holes picked out.

The cylinder shaft should be examined, and if found to be worn at the bearings, it should be renewed. All parts should be looked over carefully and anything that is worn should be replaced or repaired.

The quadrant arms on the nipper shafts should be examined, as these are very apt to be neglected by the oiler, and if the arm or the shaft is worn at this point, it will cause a noisy and bad running comber. The waste chutes should be polished, and any that are found to be breaking at the joints should be re-soldered.

Assembling.

Start with the nipper shafts; put them in place, put on the caps, and tighten them up. The only setting here is to see that they swing freely. Put in the waste chutes; put in the bolts, but do not tighten them up. The cam shaft can be put in place after examining this shaft to see that there are no worn cams and see that all sleeves are tight.

First, set all cams and timing gear so that the bolts will be in the center of the slots; turn the comber so that the pointer will stand at 5 on the index; now turn the cam shaft so that the low part of one large cam will be facing the back of the comber and the other cam will be facing the front; now drop the shaft in the bearings; this will make the comber much easier to time. Put on the caps and tighten up the bolts, and see that the shaft does not bind. Now the frame can be leveled, making sure that it is level from end to end, and also crosswise from back to front.

◆ ◆

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need no conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

Detaching Roll.

After polishing this roll and replacing any worn brass bushings, the roll can be put in, the caps tightened up, and the roll made to turn freely. If this roll binds, it will cause the cams to wear; also the notch wheels and the pawl noses.

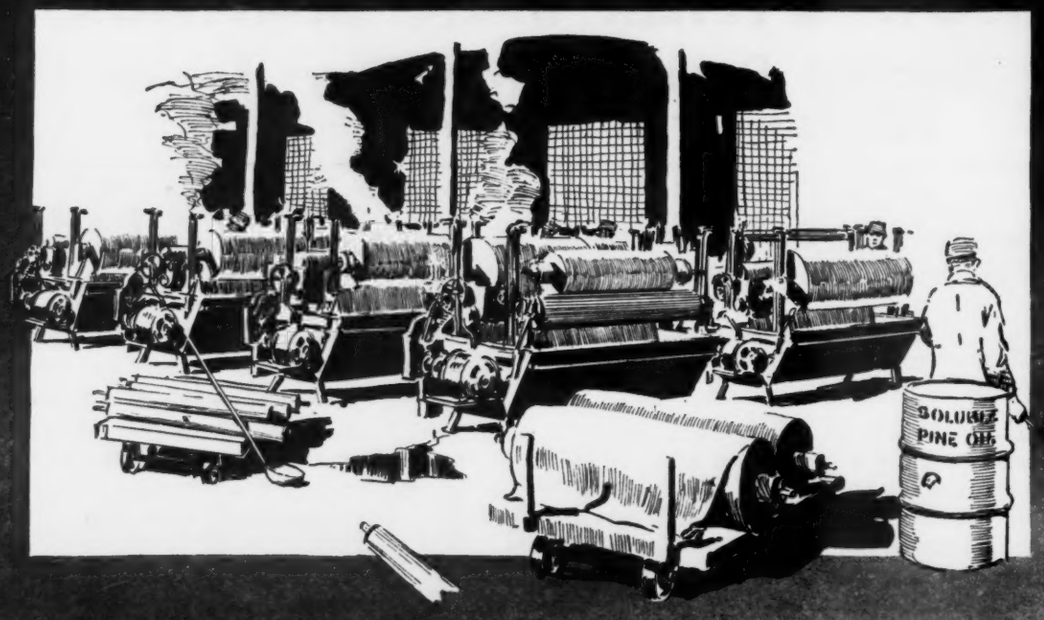
This roll should be set to a 21s gauge from the segment at about 9 on the index. Now turn the comber to index 5 and set the front edge of the segments to the back side of the roll with a 1⅛-inch gauge.

Timing the Detaching Roll.

This roll should start forward from 5¾ to 6¼ according to the length of staple; for long staple, 5¾; for short staple, 6¼.

If this roll starts forward too late, the piecing will be curled, due to the fringe of cotton coming in contact with the roll before it starts turning. To time this roll, turn the comber to 5¾ and so that the low part of the large outside cam will be toward the back of the machine; loosen the bolts in this cam, and turn the cam backwards toward the front of the comber as far as it will go. Then, with the hand on the roll, turn the cam over toward the back of the machine until you feel the roll start forward. Then tighten the bolts; turn the comber over one cycle, and time the inside cam. Now turn the comber over and see that these cams both start the roll forward at exactly the same time.

The setting and timing of the detaching roll and



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segments are the foundation of all settings, and if these are out, all settings will be out in proportion.

The Waste Chutes.

Set these so that the sides at the top will clear the cylinder evenly on both ends and so that the strip of leather will just come below the center of the detaching roll.

Feed roll setting: The setting on this roll depends on the amount of waste required, the length of staple, and the weight of the lap run. There is no set rule for the setting of this roll, but it should be tried at different points until a setting is found to suit conditions. A good setting for a 570-grain lap, taking out 18 per cent waste, is 1¾-inch. This is with cotton containing a medium amount of short fiber.

After the roll has been scoured and polished, put it in the bearings, and set from end to end with the required gauge; in this case, we will use 1¾ inch. Then tighten the bearings.

Top comb shaft: This shaft should be set with the 6½-inch gauge from the back side of the detaching roll to the front side of the top comb shaft. If running very long cotton where the nipper stands have to be moved well back, this shaft can be set to a 6¾-inch gauge. If this shaft is not set parallel with the detaching roll, it may cause trouble in setting the top comb.

The nipper frames: The nipper frames should be taken apart and cleaned thoroughly, and nipper knives and cushion plates polished. Any of the small shafts that carry the nipper arms that are found to be worn should be replaced. These frames should be set so that the front edge of the cushion plate will be the distance of a 22s gauge from the small lip on the nipper knife, and they should hold paper all the way across.

In setting these frames to hold paper, it is best to use three strips of paper 1-inch wide, one at each end and one in the middle. If it is found that when the nipper is closed, the paper in the middle is loose, take off the nipper knife, and with a fine file, file that half of the face of the nipper arm from the center of the screw hole toward the middle of the frame—just three or four light rubs of the file will do the trick; this will allow the knife to be drawn in at the middle. When tightened down, try it again, and if not enough, file a little more.

If it is found that the outside or the end papers are loose, file the other half of the face of the arm, that is from the center of the screw hole toward the end of the frame. It is very important that these frames bite evenly all the way across. I do not believe it is practical to pack these knives with paper to make them bite, nor do I believe in filing the nipper knife, because if a nipper arm gets broken, it will have to be fitted, and it is very seldom that a nipper knife gets damaged.

Setting the cylinder brushes: Reverse all brushes on the shaft; clean out all the bearings; put the brush shaft in place; put on the caps and tighten down; set the brushes central between the stands. If the traverse motion is being used, set the eccentric so it will be on dead center, then set the brushes on the shaft central between the stands.

Turn the comber so that the front strips of needles will be directly over the center of the brush. Then set the brushes so that the bristles will just touch the brass strip on the half lap. Do not set too high, as it only shortens the life of the brush. Turn the comber so that one of the blank spaces of the cylinders is over the brushes, and see that the brush shaft turns freely.

Setting nipper frames in the comber: There are several methods of setting these frames, but I will try to explain the method I always use, as I find with this method I can retain the nipper angle better than with any of the other methods, and when the job is finished, it is better to look at.

Place the frames in the comber, turn the stop screws well back away from the nipper stands back and front. With the angle gauge, put in the required angle, which should be from 35 degrees to 38 degrees, using the right-hand stop screw to get this, tightening up the check nuts as you go along.

Now, turn the comber so that the segment will be under the nipper knives, and make sure that they are all clear. Now turn to index 14½. Start with setting No. 4 frame. First set the knife to the cylinder needles with 21s gauge, bearing down on the knife a little while passing the gauge through. Set the cushion plate to the detaching roll with the gauge required; in this case, we will use 1½-inch gauge. Now move No. 4 and No. 5 nipper stands up or down until the cushion plate gauges to the gauge at both ends. Then with the 21s gauge, go over the nipper setting again and back and forth until the cushion plate and nipper knife both gauge correctly; then tighten No. 4 and No. 5 stands.

Now set No. 5 frame by moving No. 6 stand and adjusting the right-hand stop screw, until that cushion plate is set to the gauge, also gauging the nipper to the needles. The angle in this knife will have changed, but it will be very slight.

Now set No. 1 frame as we set No. 4, tightening up the stands on each end of it. Then take No. 2 and No. 3, which must both be set together. First gauge the knives to the needles, then gauge the cushion plates to the roll, getting the distance in this case at the middle of the plate instead of at the ends. Get this setting by moving No. 3 stand up or down as required, and by adjusting the right-hand stop screws.

Now try the gauge at the ends of these plates. You will find that they are not parallel. This variation must be divided in the following manner: If No. 2 plate is loose to the gauge at the left-hand side and close at the right-hand side, and No. 3 plate is just opposite, that is, close at the left and loose at the right, then we would drive No. 3 stand back and adjust the plates with the stop screws and the No. 3 stand until both left-hand ends are the same and both right-hand ends are the same, and the plates gauging to the gauge at their centers. Also make sure that the nippers gauge to the needles. Then tighten No. 3 nipper stand, and tighten the check

nuts on the right-hand stop screws.

We can now set No. 8 frame as we did No. 1, and 6 and 7 as we set 2 and 3. All nipper stands can now be tightened up, and the remaining check nuts set up. The left-hand stop screws can now be set. These remaining screws can be set with paper, taking two strips, one under each screw, and set up the left-hand screw so that both papers will be tight.

The back stop screws can now be set up. Turn these screws up to the stand with the fingers; then give them one-quarter turn with the wrench, and tighten the check nuts. Care must be taken not to set up too hard on these back screws or the fingers on the nipper frames will be broken off.

We are now ready to put in and set the connecting rods. First turn the comber so that the first strip of needles will come under the nipper knife, and try the 21s gauge between the knife and the needles, pressing down on the knife while passing the gauge through. Try the gauge at several points on the half lap, and if found too close, just draw off a little, but if found loose at any point, do not set down.

In making any settings at any point, it is always best to set down close, and then draw off, as this takes up the lost motion in the screw. Now put the connecting rods in place, and if any of the pins are found to be worn, they should be renewed.

Turn the comber to index 14½. Place two strips of paper between each nipper knife and cushion plate, one at each end; turn the nipper cams so that the cam bowls will be on the high part of the cam. Start at the head end of the machine and turn down the top nuts with the fingers until both papers are tight; then tighten the bottom nuts with the wrench. If these papers are not tight after tightening the bottom nuts, loosen them and tighten down on the top nuts a little more.

Now, go to No. 2 head and set these as we did No. 1. Then try the papers at No. 1 again and see that they are tight. If they have loosened up, it is because you have tightened down too hard on No. 2. Now proceed on to No. 3 and so on, always returning and trying the other papers after setting one head, as a little too much tension at one head will tend to loosen the other papers in that half of the comber. If all frames were properly set before they were put in the machine, there would be no trouble setting them to hold paper when they are in the machine.

It will be noticed that in this method of setting nipper frames, there are four of the cushion plates that are not quite parallel with the detaching roll, but the difference is very slight. It will also be noticed that we have three of the nipper knives that have the original angle—Nos. 1, 4 and 8, while the others will vary slightly. It will also be noticed that the stop screws project from the nipper frames quite evenly, making a neat looking job, as well as a practical one.

In the other methods of setting nipper frames, the cushion plates can all be set parallel, but there will only be one nipper knife with the original angle, and the other seven will vary considerably; then in the case of the stop screws, they will project very unevenly, making a poor looking job.

I have seen men file the nipper arms where the nipper knife fits on, to bring the cushion plates all parallel and retain the angle, but I do not think this is practical, as in filing these arms, the distance from the nipper knife to the center of the swing in the nipper arm is being changed, making the distance shorter on one side than the other.

Timing the nippers to close: Turn the comber to 11 on the index; loosen the bolts in the nipper cams; turn them back as far as they will go; then turn them over toward the back of the machine until the nipper knife touches the cushion plate; then tighten the bolt. Be sure that both nipper cams are timed exactly the same so that both halves of the nippers will close at the same time.

Setting the roll blocks: Turn to index 8, put in the rolls and hang on the weights and adjust the blocks so that an 8/1000 gauge will just pass between the block and the flat side of the roll bushing. If the gauge used for this setting is too thick, there is danger of the leather rolls being scratched by the half lap needles.

Setting top combs: Put in an angle of from 25 degrees to 30 degrees, using a new leather detaching roll, and setting the blade of the comb as close to the roll as possible without touching. I always set at a distance of 1/64-inch having two gauges for this purpose, using one at each end of the comb. Set the comb to the segment at index 7 with the gauge required for the amount of waste to be removed, usually a 20s or a 21s. The comb arms must be free on the top comb shaft so that when the top comb is lifted, it will not bind. The adjusting screws on the top comb arm must set evenly on the stands so that each one will hold a piece of paper. The ends of the top combs must be even with the ends of the segments; tighten the collars on the comb shaft to hold the combs in place.

Now put in the sliver pans, and set them so that the trumpet will stand about ⅛-inch from the top table calender roll, and when pressed outward, it must touch the bottom roll. Set the back side of the sliver pan so that the brass guide will drop in place freely, and will be just above the strip of leather on the waste chute. If these guides are too high, it will cause the comber to run badly.

Put in the brass clearing rolls, and set them parallel with the steel detaching roll and to the thickness of an 18s gauge from the leather roll. If these rolls are not set exactly parallel with the steel roll, they will cause the slivers to be curled and cause a lot of end breakage.

Put in the lap plates; set them central between the top comb arms, and set the brush so it will just touch the feed roll. Set the top feed rolls parallel with the bottom roll and just forward of the center. Put on the springs having them all about the same tension, but not too tight.

Now we can put in the doffer and doffer comb. Set the doffer to the brushes to a 12/1000 gauge; if

set too close, it will cause the waste to be packed in the doffer. Set the doffer comb about 1/32-inch from the doffer at its closest point, and adjust so that the center of the swing will be just below the center of the doffer. Put on the doffer covers, and set them as close as possible to the doffer at the back, and as close as possible to the cylinder at the top, without touching either.

I have always found on this Model D-2 comber that I can get the best results by setting the comber so I can feed between 6 and 7 on the index. I have found by feeding after 7 that I get bad piecing and a ragged-looking sliver at the draw box.

In deciding on a setting for a comber, there are several points to be considered, such as length of staple, weight of lap, amount of short fiber and dirt in the lap. and amount of waste to be removed. To get the best results, it is a good plan to experiment with a comber to get a setting that will give the required amount of waste without having to feed too late, or to change the nipper time.

Nipping later and feeding later will increase the amount of waste, but they will also put a lot of long fiber in the waste box. The point is to get a setting that will give an even sliver, and remove the dirt and short fiber without taking out a lot of long fiber.

R. G. (R. I.)

Another Discussion of Card Settings

EDITOR COTTON:

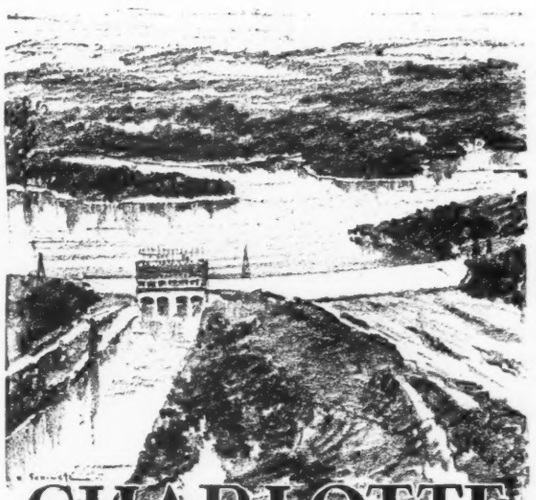
Referring to the letter from "CONTRIBUTOR NO. 6172" about card settings, the following remarks are intended for discussion—just as he asks for it—and not as an argument. First, let me repeat the settings which he listed in his letter on page 63 of the January issue:

Feed plate to licker-in, 7
Licker-in to cylinder, 10
Back plate to cylinder, 29
Mote knives to licker-in, bottom 10
Mote kniver to licker-in, bottom 10
Back screen to cylinder, 22
Middle screen to cylinder, 34
Front screen to cylinder, $\frac{7}{8}$-inch
Doffer to cylinder, 7
Flats to cylinder, 10; except the front stand, which is set to a 17.

This man is running 1 1/16-inch Low Middling cotton, making a 55-grain sliver, with the following speeds: Licker-in, 428 r.p.m.; cylinder, 165 r.p.m.; and doffer, 11.5 r.p.m.

Studying this man's letter and the order in which he lists his speeds and settings, I will discuss them as I understand and see them.

The feed plate setting and the licker-in to cylinder setting are crossed up, to begin with. I know some carders—older ones, too—who believe that anything more open than a 7 setting from feed plate to licker-in would be nothing less than sacreligious, but experience has taught some of us that it is better not to set too close there. As most readers will understand, the cotton is in its bulkiest form here, and it is the purpose of the licker-in to both clean and straighten the fibers as much as possible. With the high speed of the licker-in, he would have approximately 17,000 licker-in teeth striking the cotton per inch as it passed



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this point. Now, with the licker-in speed and the number of teeth striking each inch of cotton kept in mind, it will be easy to understand that the cotton will be continuously "cut" upon or up against a solid circular knife edge. Keeping this in mind, if it were possible to see the licker-in and feed roll rotating and looking at it from the top side down between them to where the cotton is presented to the licker-in, we would see that the natural resistance of the cotton would cause it to stand out against the licker-in.

One other point in this connection and we will have the analysis of this point. The cotton is more or less in a "matted" condition while in the lap, and it must be so, as it is presented to the licker-in. Suppose that a great part of these fibers are so matted that the fibers individually or collectively are formed into much the same shape as an ordinary wire staple (such as is used for erecting a wire fence) and they go to the licker-in with the "looped" end first and the feed roll and feed plate hold onto the two pointed ends. Now, remembering the speed and the number of teeth striking the cotton, as well as the natural resistance of the cotton, we can easily understand that the majority of these fibers looped like staples are going to be broken or cut in two, which makes more fly waste and less breaking strength. Some men think that because they get a lot of short fly waste they are experts at the game, when the fact is that they are making these short fibers, as I have explained.

I am sure that we all realize that the closer we set the feed plate to the licker-in, the less space we have for the cotton to pass through, which of course adds to the natural resistance of the cotton. I am remembering too that the cotton "looped" as I have suggested would not be long enough for the looped end to be at the licker-in and the points underneath the feed roll center, but it would not be necessary for it to be that long because of two factors entering into this particular part of the problem: first, the thickness of the lap between the feed roll and the feed plate fills up and packs the space between the edge of the feed plate and the roll; and second, because the fibers are worked downward or toward the mote knife, which means that the fiber is bent down over the edge of the feed plate which has a binding or holding or gripping effect upon the fibers.

Allow me to cite a specific case: "John" took a new job as overseer of carding for a mill making print cloths and narrow sheeting. He found the identical method of setting the feed plate and feed roll as "CONTRIBUTOR NO. 6172" says he is using. He also found a breaking strength, average, of 53 on 30s warp made from 1-inch Strict Low Western cotton, and furthermore found that 68 cards yielded 87 to 95 pounds of fly waste per 10 hours. He changed these settings, or rather reversed them, with the following results: The break now averages 58 pounds; the fly waste from the same 68 cards weighs 60 to 63 pounds; and of course, four cards are out for grinding the same as when "John" took the job. I might add this experience also: A mill that I am well acquainted with is perhaps one of the greatest experimenters in the game, and to my certain knowledge they have been using, for several years, a 17 gauge on the feed plate to

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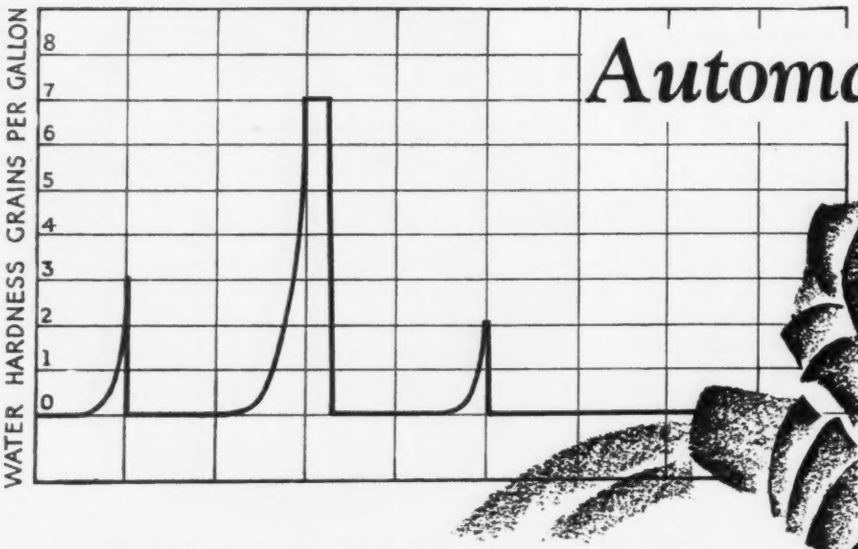

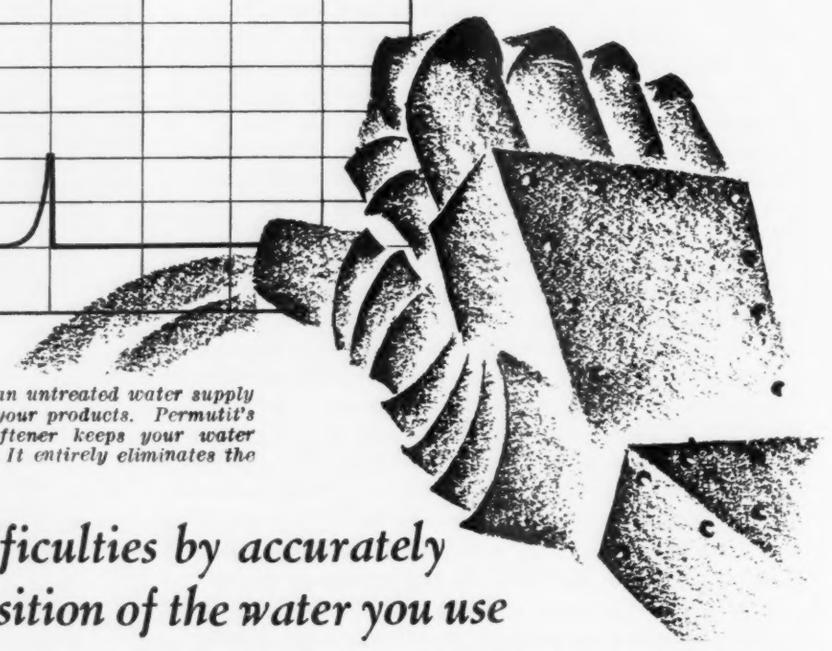

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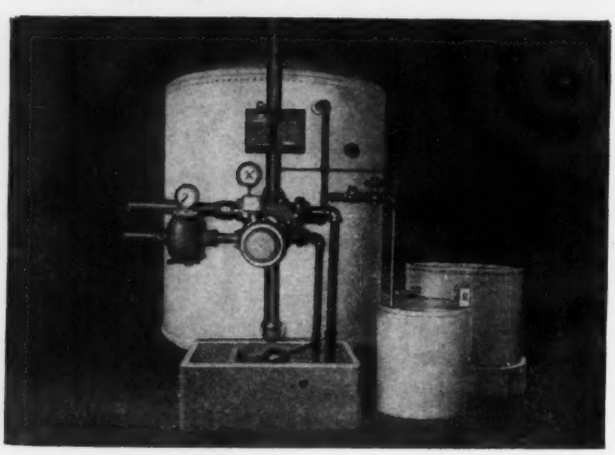

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licker-in, and a 10 gauge on the licker-in to cylinder settings.

The next item is that of the back knife plate to the cylinder. I presume that he sets both top and bottom edge to the 29 gauge listed. Well, some of us have learned a lot about that setting since the carders' meeting in Columbia last spring (reported in the June 1932 issue of COTTON, page 44). I have learned more about it since that meeting, but for several years (three or more) I have set mine different. He will get better work, a dirtier or darker flat stripping, less fly and more motes, if he will set the top edge of this plate to a gauge made of No. 14 gauge sheet metal, and the bottom edge to the 29 gauge. On some older makes of cards the flexible bend supporting this plate may have to be reduced in thickness at the licker-in point.

The theory for this more open setting at the top of the plate is that the centrifugal force created by the cylinder will tend to "fluff" the cotton or throw it up against the first flats, and at the same time break the air current that would otherwise be there. It's a well known fact that the grinder has to hold down the first flat on the back stand with one hand while he gauges it with the other, which is conclusive proof to me that the flats are really farther away there than at the second, third and fourth stands. (I am leaving out the front stand here, for it comes later and I will refer to the back stand again).

His mote knife settings, as given, seem all right. He does not say whether he tilts them to present a better knife point to the licker-in or not. Let's hope that he does, for it is a neat trick and makes better work.

I set the back screen at the nose to a 29 gauge because the screens last longer, do better work, and we have less lumps in the walls between the cylinder heads and the frame of the card.

His middle screen setting of 34 is all right; his front screen setting of 5/16-inch is a little more open than I set mine, but it's a good setting; the fact is that the front screen does not need to be set close.

His setting of 7 of the doffer to cylinder is okeh provided it is set to the gauge and not to the "feel".

I am heartily in accord with his setting of the flats to the cylinder *except the front stand.* I fail to see why he would pour water through the small end of a funnel, and that is the same theory he is using with that setting. That, too, is the reference I have to make to the flats at the back stand. They have a natural tendency to stand out or away from the cylinders for the first three or four flats (which begins with the right end of the funnel). I have known men who set with what they call a "graduated" setting, viz., the back stand to a 10 gauge, the second stand to a 9 gauge, and using a 7 gauge on out through the other three stands. That "looks" reasonable and might under certain local conditions be advisable.

"CONTRIBUTOR No. 6172" says in part, "We set the front stand to a 17 gauge [after setting the others to a 10] because they gradually load from the back and are heavily loaded by the time they reach the front stand." He said that "a close setting will not give additional carding but will cause the stock to roll and

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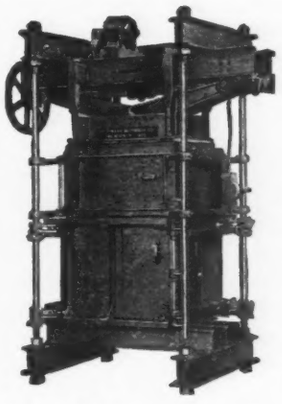

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pass into the web in that condition", and further states that he knows the setting he gives is producing good results on fine work.

Now let's consider this in the order given. We all know that flats "go to work" as soon as they pass over the top edge of the back knife plate and we also know that cotton will adhere to the wire on the flats (hence the carding), but it is unreasonable to believe that the card is so heavily loaded on the flats at the front stand that they will give no carding, especially when we all know that the flats, so far as the "loading" is concerned, are controlled by the front top plate, and by the way—I notice he has left out his top front plate setting.

One of the first things I learned when grinding cards was that I could make a heavy or light flat stripping—the fact is, you can set the top front plate so close to the cylinder (without their rubbing together) that there will be "naked" places on the flat, or in other words, the strips will not reach from end to end of the flat.

That, to my mind, explodes the theory of "CONTRIBUTOR No. 6172" because if his flats are "loading" too much on the front stands, he needs only a wrench and a couple of minutes to cut the strips out altogether (provided of course one knows where and how to use the wrench).

Some print cloth mills have discarded the flat drive pulley and are driving the flats from off of the sleeve or bushing on which the flat drive pulley was originally mounted. Others have put on smaller than the original flat drive pulley. Neither of the users of the different methods have found the flats to be loading—because the plates (the top front plate) were re-set.

My advice to "CONTRIBUTOR No. 6172" would be to speed up the flats if they are loading so badly on the front stands.

As to the statement that fine work is being obtained with good results with that setting, I have only this to say: certain men have certain tastes while others' tastes will differ, and some even have no taste at all. So you can't always say that "the proof of the pudding is in the tasting thereof"—for instance, the cook might do his own tasting.

In conclusion, I will say that the speeds given by "CONTRIBUTOR No. 6172" are okeh. Mine, however, are a bit faster, especially on the licker-in.

I thoroughly appreciate the last paragraph of "CONTRIBUTOR No. 6172" about having his letter discussed; also I agree with him that we do benefit by an exchange of ideas. This causes me to believe that he is open-minded and will take my criticism in the spirit in which it is given.

CONTRIBUTOR No. 6175.

Bulletin on Controller

The Foxboro Company, Foxboro, Mass., manufacturers of controlling, recording and indicating instruments for temperature, flow, humidity, and pressure, have issued a new catalog describing their Rotax controller, for temperature, pressure, humidity and liquid level. This controller, it is pointed out, makes possible the use of electricity as the operating medium for control, and thus widens greatly the available use of control.

Another Method of Slashing Crepe Yarn

EDITOR COTTON:

I am writing to reply to the question of "CONTRIBUTOR No. 6167", who asks for methods of slashing crepe yarn—1,534 ends of 80s/2 regular twist and 1,534 ends of 80s/2 reverse twist—to prevent the warp from rolling and taping.

The sizing of two crepe yarns on the same slasher is best accomplished by using a separate size box for each hand twist. These boxes are placed in tandem at

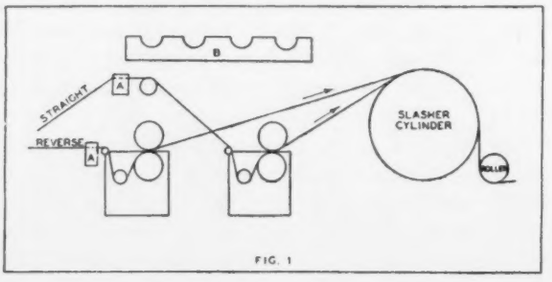

FIG. 1

the back of the slasher and the yarns separated in tape form; the straight twist being drawn through one box and onto the slasher cylinder, and the reverse twist through the other. In this particular case, the 1,534 ends are separated into two groups of 383 ends and two groups of 384 ends, on each hand twist. A side view of the passage of the yarns is shown in Fig. 1. Each group of ends runs over a notched board *A*, shown in side plane view at *B*, and thence on into its particular size box and up to the slasher cylinder. (With the notched boards staggered so that the ribbons made of the warp alternate, these strands will pass through each other as indicated by the sketch.)

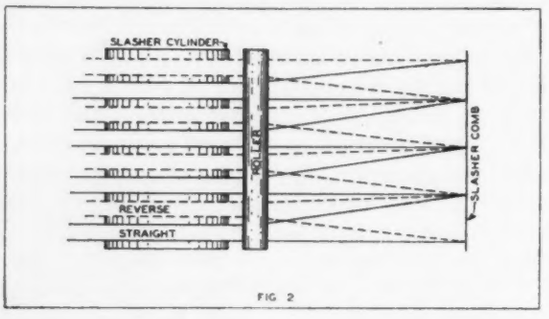

FIG. 2

Usually the reverse twist yarn is given a tint while in the size solution.

A top view of the set-up is shown in Fig. 2, showing how the yarns are spread into the slasher comb.

The taping of the yarns is accomplished by counting off the correct number of ends, for each group, from the beams; and laying these groups in the notches of the boards shown in position at *A*. Lease rods are put in the usual manner, each hand twist being leased separately.

Although the arrangement shown is a very crude sketch of an actual set-up, it is hoped that the idea is put across and will furnish the desired information. Although the passage of the yarn is shown for a single cylinder frame, both cylinders may be used if required.

CONTRIBUTOR No. 6170.

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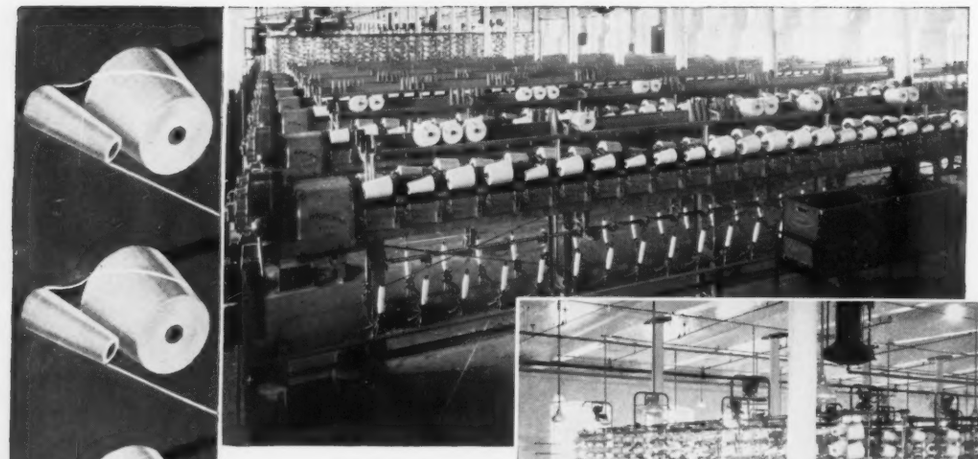

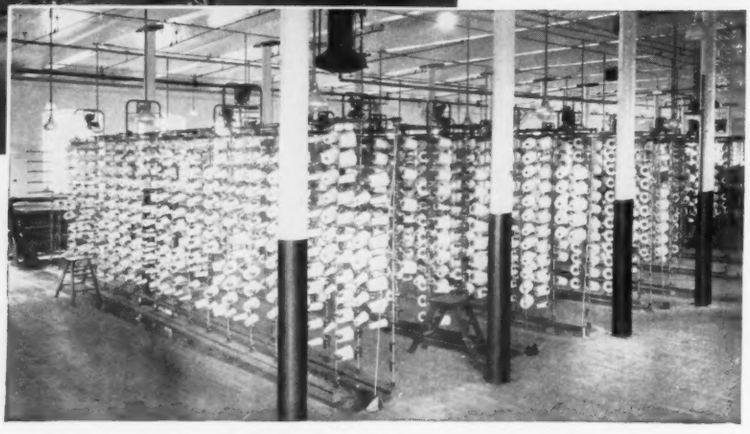

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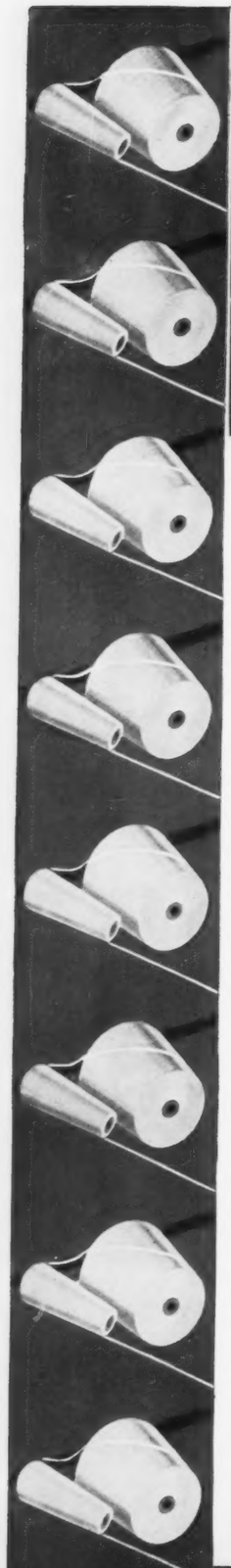


UNIVERSAL WINDERS

A Textile Graduate Answers "Wash"

EDITOR COTTON:

Well, now! On page 83 of the December issue of COTTON, "WASH (R. I.)", writing on "Textile School Graduates", in a very critical essay in which he questioned the ability of these graduates, presented four practical mill questions with the challenge that he believes most textile students would run into quite a bit of trouble with them.

If "WASH" expects a textile graduate to run a card room as successfully as an old experienced carder just as soon as he finishes school, then he should expect a boy just out of medical school to be just as skillful in surgery as a doctor with years of experience.

After all, there is nothing like practical experience. Give a textile graduate half the number of years of experience that the practical man has, and the textile graduate will more than hold his own.

Perhaps "WASH" is judging all textile graduates by a few mis-fits. Very few men that I know expect a boy to come out of school and be a more able man than the man on the job; yet, in a few years, as I said before, he can pass the practical man. I don't mean that a boy, just because he is a textile graduate, will invariably succeed, but if he has absorbed even a part of his course, and applies himself to gaining practical experience, he will get ahead, not on his diploma, but on his merits.

Now, in regard to his questions, I have solved every one of them and I know that I got good results, but in order to see just how "WASH" solved them, I'd like to see his answers.

> Question: The breaker lap is larger in diameter at one end, although the lap rack and drafts are in perfect condition. What causes the diameter of the lap to be larger at one end?

A large ended lap resulted once from the calender roll weight resting on the floor, and another time from the "kicker" or pin cylinder not being exactly parallel with the pin lifting apron.

> Question: On the card we have a very high speed doffer and we are making a great amount of waste due to the webs at the front of the card breaking down continually? Is the cause in the comb setting, position, speed or what?

It is a little difficult to say just what causes the web to break down without seeing the card or knowing the doffer speed, comb speed or cotton. However, I've seen a web break down from being set too high above a horizontal plane.

> Question: On the drawing frame some days we have a tight web between the front drawing rolls and calender rolls. Then the next day they run very slack. What causes this?

Several things may cause draw frame tensions to run differently. A different type of cotton, relative humidity, temperature, and finally, if there has been a change in crown or draft gear this causes a slight difference.

> Question: On a fly frame we have a taper of 27 degrees that causes the roving to run over and under. We have no taper gears on hand to change the taper, but must remedy the trouble. How is this done?

The taper may be changed by changing the intermediate sun wheel gear; by putting on a larger lay gear (if possible and get good work) which calls for a larger tension gear; and finally, I've seen the wraps around the presser reduced to two, and about a 6-tooth larger tension gear put on. This last method reduces the amount of cotton on the bobbin and is not to be recommended.

These are my answers, and whether or not "WASH" regards them as solutions, they are solutions for I've used them. Let's hear from "WASH".

CONTRIBUTOR NO. 6207.

Classing and Grading Cotton at the Mill

EDITOR COTTON:

I read with a great deal of interest the article on page 28 of the December issue of COTTON, "The Importance of Cotton Classing and Grading at the Mill".

I believe that a great many mills fail to realize the real importance of a good cotton classer. In my mind the man who classes cotton at any mill should be in close contact with the cotton buyer and give his advice as to the character of cotton to buy for different yarns.

Some cotton classers will class the bales as they arrive at the mill and if they equal the type that was bought on and are O. K., they feel that their job is done. This should not be the case. A good cotton classer should feel that he is responsible for the break of all yarn. After delivering the proper mixing to the opening room he should follow the work right on through to the spinning.

He should check the amount of waste at the pickers and cards, card strippings, twist at speeders and spinning, and other little items that have a bearing on the breaking strength of the yarn.

If a cotton classer has had the benefit of some good practical experience in the carding and spinning departments this should make him of much more value to the mill than the man who has just had experience in classing cotton.

At our mill, the classer, having had several years experience in both carding and spinning, has a good understanding of just how the different grades of cotton will act and what to expect in regard to breaking strength. There have been cases where the mill has taken orders on some styles that did not require a Middling grade of cotton, which happens to be our standard, but could use a lower grade providing the staple was satisfactory. In these cases the classer would take it up with the superintendent and overseer of carding and have the knives at the card set a little closer or the stripping plate set to take out a little heavier strip in order to remove a little more of the foreign matter that is found in the lower grade cotton.

There are some mills that run Middling cotton of a certain staple for all classes of work, whereas they might be able to save quite a few dollars by using a little lower grade on some of their counts if they had an alert cotton classer.

I happen to know of a mill that uses Government

1 1/16-inch cotton, Middling grade, to spin 12s, 18s, 20s, 30s and 36s yarn. This man used to make only 30s-36s yarn out of Government 1 1/16-inch, which is O. K. A small order came in for some 12s, 18s and 20s yarn and they didn't bother to buy any special cotton, but just used their regular run and they are still doing this. They are getting just about 10 to 15 pounds more of a break than they need and they are paying high for it, when you figure the difference in the price of Government 31/32-inch (which is all right for 12s to 20s) and Government 1 1/16-inch. This mill does not have a cotton classer.

We try to keep our mixing of as uniform a staple as possible and use never less than 40 bales at a mix and sometimes more. Our classer runs tests on different grades of cotton and the amount of waste, etc. Close records are kept on all cotton run and when a certain lot happens to be a little better than the average run, a report is sent to the cotton buyer and more bales are obtained from the same section of the cotton belt as needed for our work.

We find the following staples to meet our requirement satisfactorily:

For 18s to 24s, Government 1-inch
For 36s to 40s, Government 1-1/16-inch
For 50s to 60s, Government 1-5/32-inch
For 70s to 80s, Government 1-7/32-inch

CONTRIBUTOR No. 6195.

Some Thoughts on Carding.

EDITOR COTTON:

Our fellow contributor, "CONTRIBUTOR No. 4838", in his questions requesting some information in regard to carding, has presented some very technical ones, yet I feel confident that with the help of the many contributors of the "HOW OTHER MEN MANAGE" department he should be able to derive some very helpful information. The discussion will, in all probability, be of interest and value to a large number of the readers of COTTON.

"Why is it that all cards cannot be set alike and to the same gauge from flats to cylinder?" This was Question No. 1.

A very prominent practitioner was once questioned as to why the same prescription was not applicable to all patients with the same disease or ailment. He replied that the same dose of calomel will not have the same effect on every liver. The same reasoning might be applied to our friend's question. It is very true that all cards can be set to the gauge at the setting points, but yet they will not produce the same results. The flats of a revolving flat top card are very delicate, considering their size. Some card flats are more subject to slight changes than others that are near them. Oftentimes it is necessary to remove every one of the movable pieces that are to be set to get the results desired, especially the licker-in, screens, and the plates, to be sure that no unseen trouble may be hidden in these places.

Although some may not advocate such a setting, I have always contended that the rear setting point of the flats should be set one or two thousandths of an inch farther away from the cylinder than the other three or four setting points, due to the breaking effect that this point must serve on the cotton as it leaves the licker-in for carding. In one-process picking especially the cotton doesn't have the opening advantages it usually has in the case of the tandem outfits, where the cotton has the benefit of conditioning while in the cotton bins or while the breaker and intermediate laps are sitting on the floor. I am not trying to knock one-process picking for I know good results are being obtained in more than one mill that has made the installation of this machinery.

A shaky floor will often require a more liberal setting to prevent facing than a card on a stationary floor, and for this reason I believe that where it is possible cards should be on the ground floor and on a concrete foundation.

I know of one company that has three mills, and these mills have cards on the first, second and third floors. The flat settings of the cards on the first floor give less trouble than those of the cards on the other floors. In one of these mills the joints of the joists or girders under the cards are fully an inch apart at the posts, and in another there are three or more inches of shim under the fronts of the cards to make them level. Could anyone expect perfect steadiness under such a condition?

Some might contend that a two-story picker room could not be used. I have often wondered why the openers couldn't be set in the rear, or perhaps on the upper floor if it were necessary to have a two-floor outfit. Most mills now have the bale-breakers in the warehouse.

On sheetings and other such goods as osnaburgs, low quality ducks and drills I have seen the following flat settings used: on tire goods, with 11/16-inch to 15/16-inch cotton being used, a setting of 12/1000 to 13/1000; on lace and hosiery yarns, 15/16-inch to 1 1/32-inch cotton used, 10/1000 to 11/1000; combed yarns, broadcloths, organdies, lawns and voiles, 1 1/16-inch to 1 5/16-inch cotton being used, required a flat setting of 7/1000 to 9/1000.

Slack fillets on the cylinders will many times require a more open setting to prevent damage to the flats, but I think the only remedy for a condition of this kind is to have the clothing redrawn or replaced with a new fillet. Shellac should *not* be used, as this will harden the foundation of the clothing and at times cause rust. Then too, when the foundation becomes hardened the wire will begin shedding.

It is at times necessary to make certain changes on a card to produce a sliver that is fairly free of short fibers. To do this also requires slower carding, the raising of the stripper plate and removing the strips rather often, and a greater distance between the points of the cylinder clothing and the flats. Some wonder why the changing of the setting of the stripper plate will increase or decrease the amount of strips produced on cards. My opinion is this:

The stripper plate is the last point that the cotton fibers must pass until they are accumulated on the points of the doffer fillet, which is running at a speed that isn't but about 1/30 of the surface speed of the cylinder. When this stripper plate is set at a point that leaves the cotton fibers in an open and

fluffy condition, the points of the doffer clothing cannot remove them as well as when they are in a more compact condition as is the case when the stripper plate is set closer. When the doffer doesn't remove these minute fibers or particles of cotton from the points of the cylinder, it means that at each revolution of the cylinder there is more and more of this material to be removed, and as the teeth pass teh leader they take on more each time, so this extra amount must be removed somewhere, and in this case the flats are the receivers of this extra amount of cotton.

Card clothing that has been used for a number of years loses some of its elasticity and flexibility and as it becomes aged it must be taken into consideration that the foundation doesn't have the resistance that it once had, or its ability to regain its natural state when it is abused. This should be taken into consideration in the setting of card flats.

I am of the opinion that card flats can all be set to the same gauge where the conditions will permit, but those things that require alterations must be considered, or else we will have a lot of faced flats in the end.

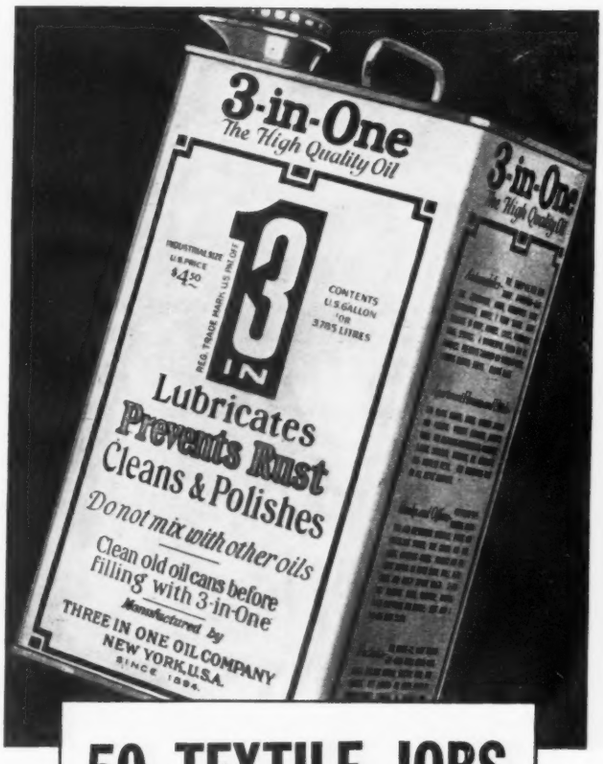
The second question asked was, "Why is it that cards after they have been ground for ten or fifteen years have high and low flats? That is, when the low flats are set to the proper gauge to card the cotton, the high flats rub and face, and when the high flats are set properly the low flats are so far away they will not card properly."

We will find this condition in every mill, or at least I have in every mill in which I have made an examination for such a condition. It seems that this is a universal problem and that the controlling and correcting possibilities are large, but it does not appear to be a problem that is very earnestly studied.

While the flats are being ground there are often many chokes that go between the flats and the grinding apparatus, which will raise the flats or press the grinding apparatus away from the normal place of operation, and in this way will cause the flats so affected to be ground too much or not enough, as the case may be. This will cause a high or low flat. This choke could be a small piece of fly that had collected in the flat chain, or from other places where such accumulations could be collected. Another cause could be the cradle in which the grinding drum rests being slightly out of adjustment; still another being, on the weight type of grinding, the weight not functioning as it should.

The temper of the wire could have some effect on high and low flats, as it may be hard or soft and affected either way in the grinding operation. There is a possibility of creating much unevenness of temper by setting the grinding rolls incorrectly. It may be easily seen when the rolls are set too deep by the stream of sparks that set forth during the grinding. If the flats become heated to too high a degree the next time they pass the grinding roll the same effect that took place the first time will not take place.

Flats often wear more on one end than they do on the other. This is due to uneven setting of the flat drum, and will eventually cause loading on the ends, and this will finally mean a new set of clothing



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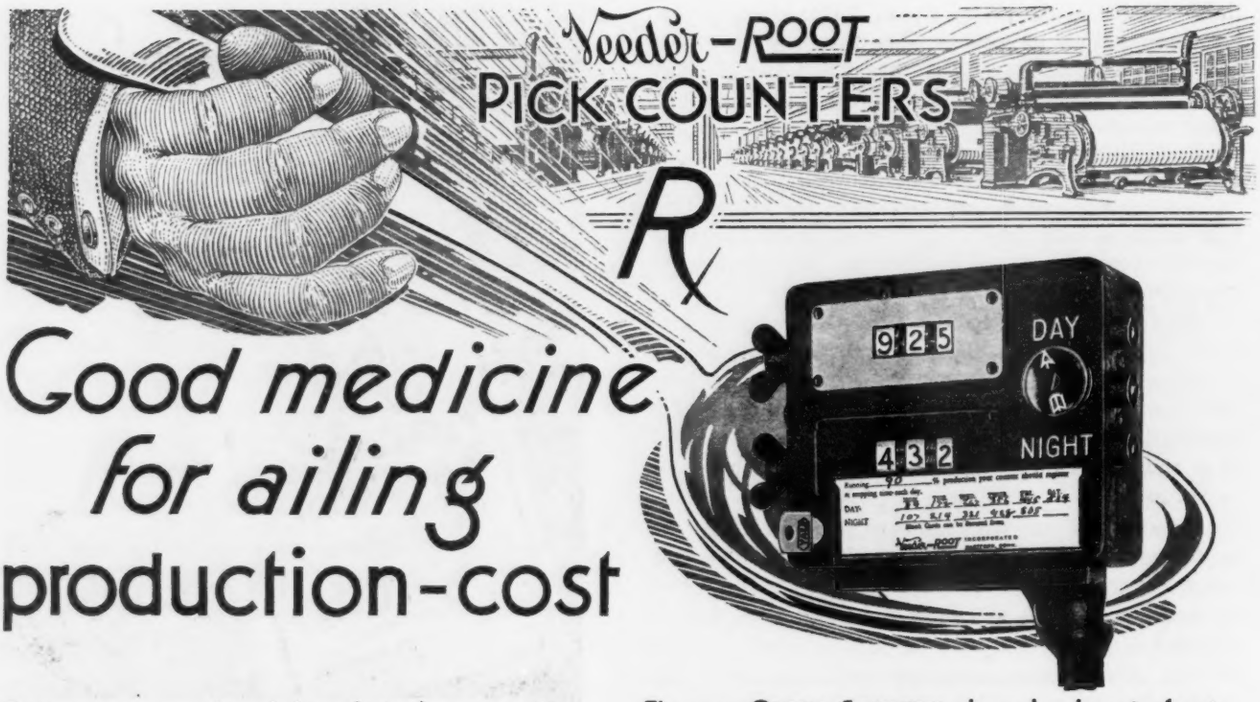

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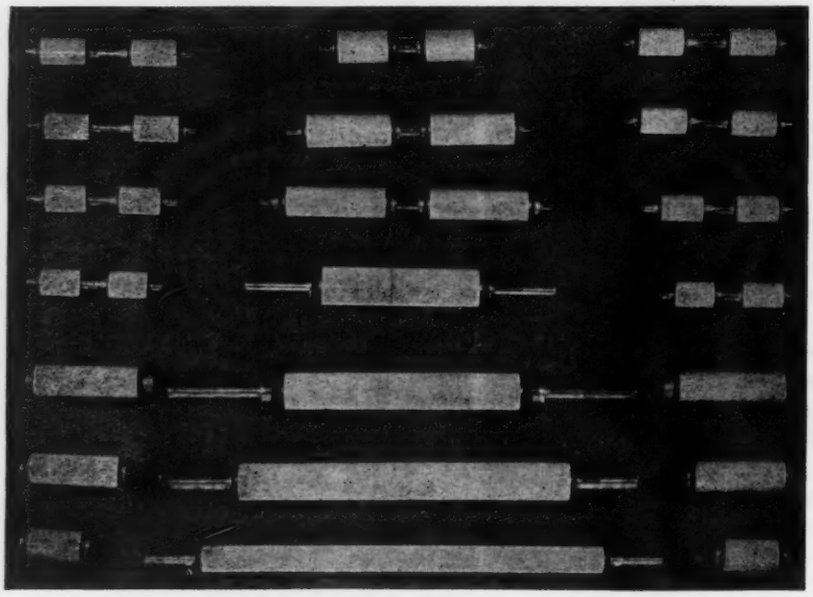

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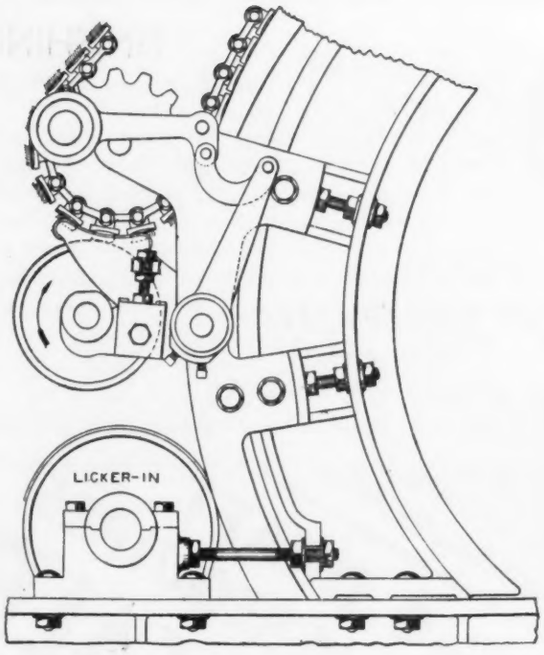

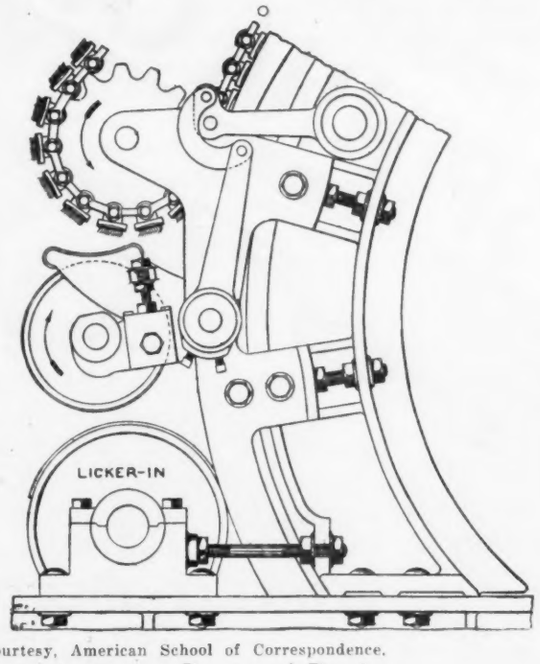

Courtesy, American School of Correspondence.

Fig. 1 and Fig. 2.

for the flats.

The emery fillets on the grinding drums should be inspected regularly, and not be allowed to become so dull as to not give the proper grinding that is desired, for very little benefit is derived from grinding the flats if the emery fillet has become worn to the point that it is real slick. The flats will merely get a hard rubbing, but no sharpening will take place.

I have heard some say that the grinding stand should not be the middle or rear middle stand, as there is a possibility of a slight spring in either of these positions. They claim that the grinding apparatus should be attached to the rear stand just above the licker-in, as shown by Fig. 1 and Fig. 2.

"What causes high and low flats and what can be done to make them more uniform so they can all be

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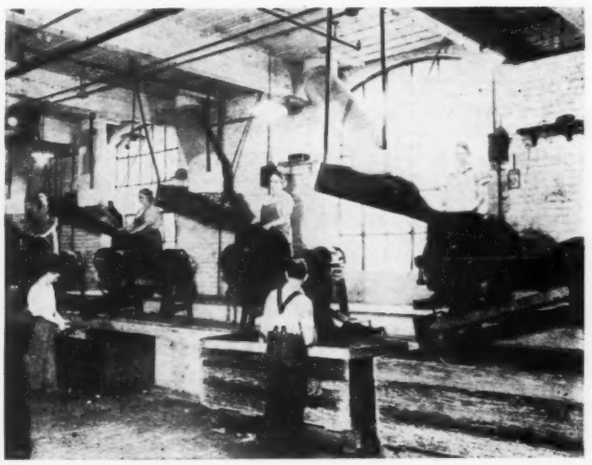

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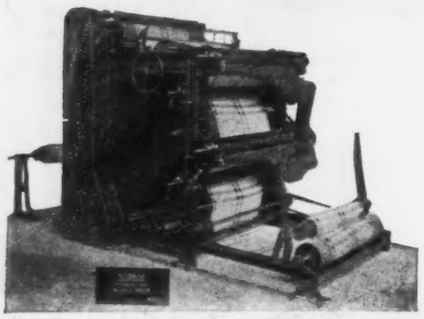

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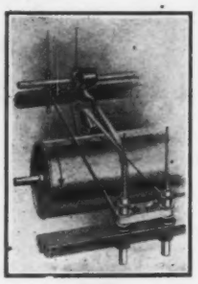

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set to the proper gauge?" was the third question our friend asked.

I partly answered this question in answering the preceding one, but the remedy should be given.

When flats are run for a period of 10 to 15 years the life of them becomes very limited, though some flats I know of have been in service for more than 25 years and are giving good work. We may have flats that are uneven in a set, and some means is desired by which we can make them all even or regular. Several things may be tried, but the sure remedy is to have them recovered. This is the easiest method, and, though apparently expensive in the beginning, it will prove cheaper in the end.

We should also take into consideration that when flat chains become worn they stretch, thus making it necessary to remove some of the links.

It was my good fortune when I first went to work in a cotton mill to do the dirty work for an expert on cards. I would ask him how often a card should be ground and he would invariably reply: "Just before the card needs it, or before it becomes dull."

With the equipment in the picking department that "CONTRIBUTOR No. 4838" stated he had, it seems to me that he should be obtaining good cleaning. If he is not, however, I would advise that he make some addition that will enable him to get good cleaning. Using 1⅛-inch cotton, though, he should be able to get adequate cleaning with what he has. I know of one mill using 1 5/32-inch cotton that has only a breaker and finisher picker and they are making good laps and doing a good job of carding. I know of another mill using the same class of cotton, along with some 1¼-inch, that has a single process unit with only one beater and they are getting good work.

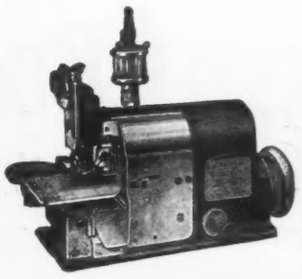
The cotton, provided it is getting the proper picking in the tandem outfit that our contributor has listed, should be in ideal condition when the laps are fed to the licker-in. Where mills are running full time, and the grinders are efficient, I think that a thorough grinding should be made every 200 running hours. This will put these traverse rolls around every 20 days. While this grinding is being done, the flat drum should be followed along with the traverse rolls, the proper settings being made at the grinding.

"Is 1⅛-inch cotton harder to card than ⅞-inch cotton, and why?" was the last question asked.

My answer is, yes. Usually cotton of the longer staples is of a more harsh nature, and has more neps in it than that of the shorter upland staples, as the short staples will many times out-number the fibers per pound of the longer staple cotton two or three to one. Where neps exist in the longer staples it will be absolutely necessary to have the cards sharper to remove these foreign particles that are not wanted in the finished product, and which will reduce the breaking strength and quality of the finished yarn. We all know that short hair is easier to comb than long hair.

The shorter staples are usually finer, and of a more silky texture, in a softer condition, so it should be easy to understand why it requires less effort on the part of the card to remove the leaf and motes from the short staple cotton. With the long staple there is a harshness or hardness to battle with.

J. R. (GA.)



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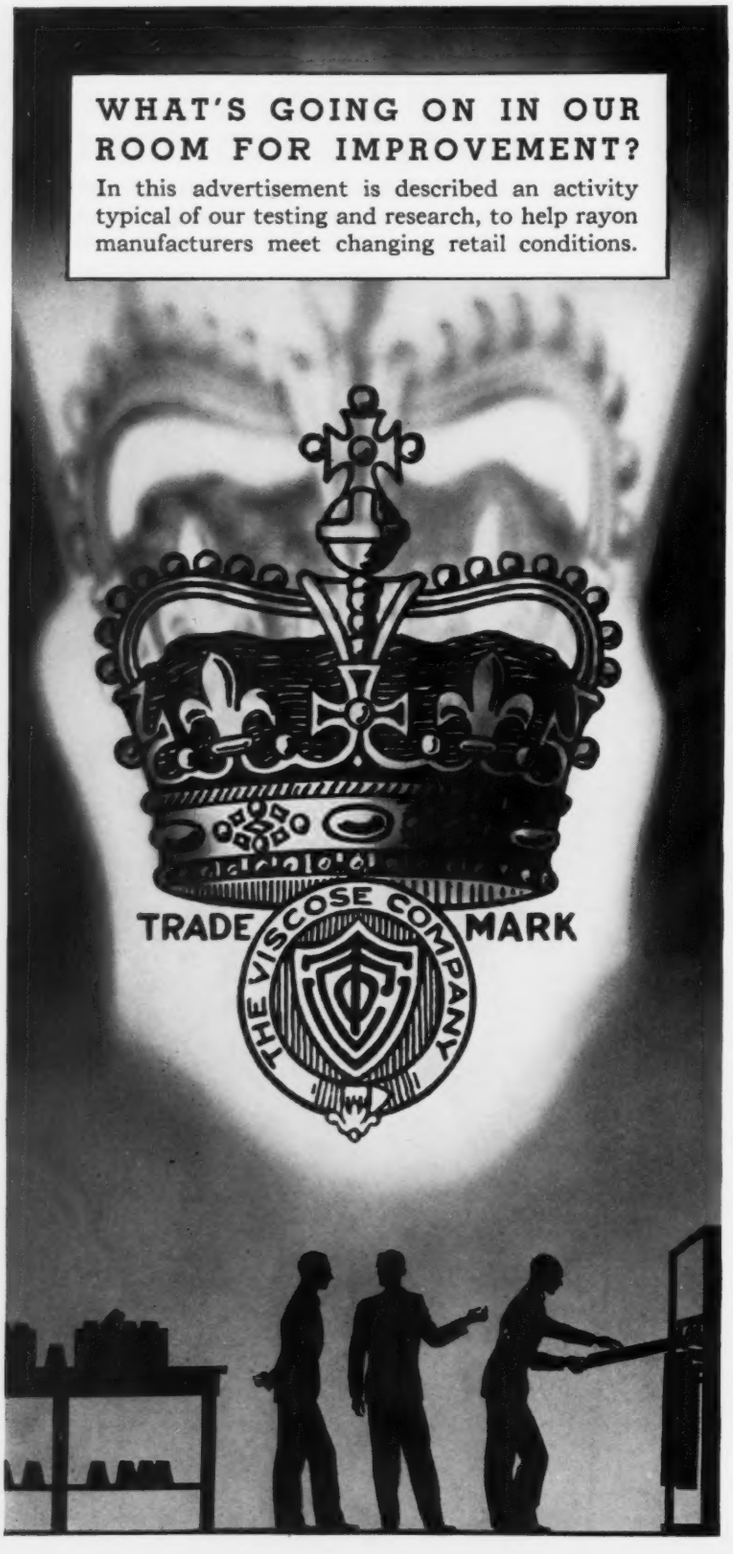
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CROWN
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Illustrations of Recent Progress in American Made

Embroidery Wrap Hosiery Machines

By Carl Epps
Research Department
Tubize-Chatillon Corp.

FANCY hosiery, up until a few years ago, was generally considered a fad or novelty. The tremendous success of the pioneers in this field was proof of the American public's acceptance of sound progress in hosiery manufacturing. Demand grew faster than the supply until there were few hosiery manufacturers who were not making some type of fancy goods. Fancy hosiery was not new, but the ingenuity of the American manufacturers brought prices within the bounds of volume consumption. Hosiery machinery makers had little in the way of equipment to offer for fancy work, but the demand soon awakened their inventive genius along with that of individual hosiery mills making their own attachments. As production of certain types of fancies became familiar they receded toward the plain hosiery position, becoming semi-staples, and made room for new developments. Among these classes are twisted, novelty dyed, ingrain, dropstitch, reverse plaited, tuck stitch and floating stripe work and their offspring. Even though these are semi-staple or full staple, they still command a position above plain staples if intelligently juggled from season to season.

Advanced knit in embroidery wrap patterns are today's contribution to refined hosiery of distinction, particularly half-hose and portions of other classes of hosiery. Hand embroidery was the forerunner in the distinct embroidery class along with a selected few individual semi-automatic needle wrap machines.

Swiss machine embroidery and glove machine embroidering contributed and still does contribute its part, but the cost of the three classes (hand, Swiss and glove machine embroidering) together with other limitations places them in a restricted class. Attempts to imitate this embroidery work with sewing machines, the stem and head type, met with justified success in the way of large volume at popular prices for a time and this class of merchandise still justifies efforts from time to time. While these classes were enjoying success the needle wrap was being developed in individual hosiery mills as well as by knitting machine manufacturers. Fake needle wrap was the easiest and preceded true needle wrap. Fake needle wrap embroidery attachments, both individual mill made and machine builders' products, have been and still are playing an important part in the fancy hosiery field. The outside attractiveness of the fake wrap designs reflected themselves in tremendous volume business, but objections to the clipped loose ends of the wrap inside the hose and yarn waste as well as other manufacturing objections and limitations all combined to hasten true needle wrap machinery development.

Inventive genius awakened to overcome the fake wrap objections contributed much to and hastened the successful development of true wrap.

Only a few individual mills could sponsor the invention and development of true needle wrap attachments owing to the expense and complications involved, and besides this was a line of work within itself and was the machine builders' job.

The machine builders had not been asleep. Their investigation and development departments were working quietly but untiringly. As soon as development had proceeded to the extent of a commercially practical machine, and the demand already existing, production proceeded accordingly. This was about five years ago. The first model, the Banner wrap stripe machine, was produced by the Hemphill Company and carried eight wrap yarns with eight pattern steps and thirty-six moves on the pattern drum, and without double sole attachments as well as being very limited in other ways.

There are now three well known needle wrap embroidery revolving cylinder machines available and one other was developed. There are two stationary cylinder machines of the seamless type and two ribber cylinder and dial type.

The aforementioned three revolving cylinder machines, The Hemphill Company's Banner wrap stripe, Scott & Williams' E S and Standard-Trump Bros. Machine Company's Standard Model 80-W are featured for their development as available to date.

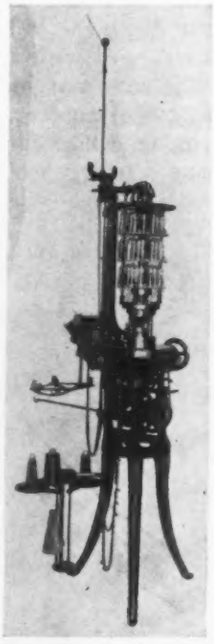
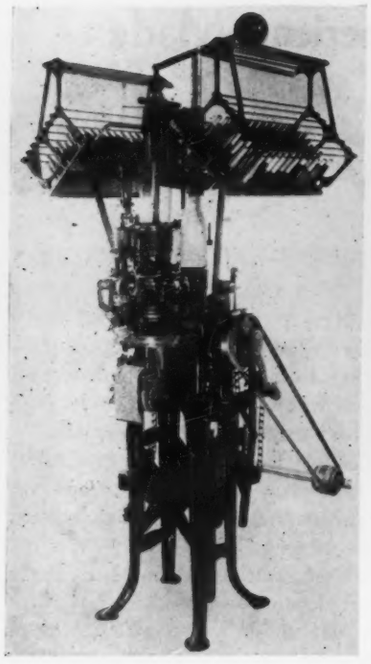
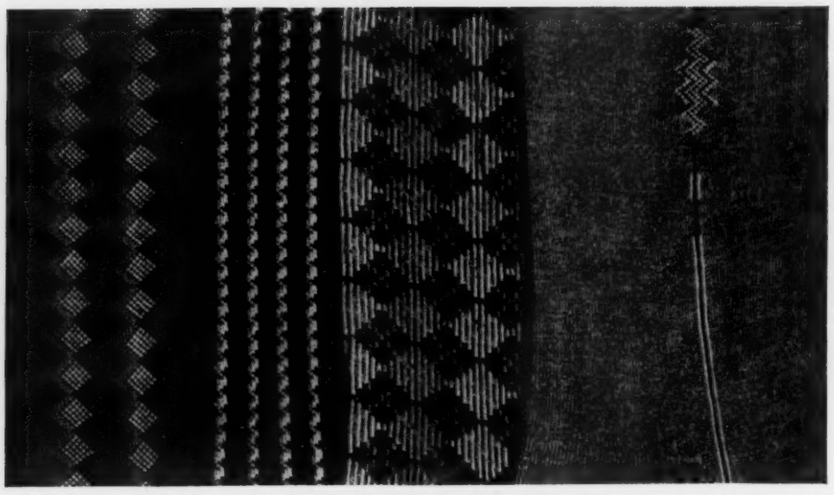


Fig. 1. The Fidelity Multi-Design Ribber

Fidelity Multi-design Ribber.

Before taking up the above three machines, attention is called to the Fidelity Machine Company's multi-design machine which is the cylinder and dial type for rib work which carries a wrap yarn for any desired number of cylinder needles. This machine is illustrated in Fig. 1. The major use of this machine is for fancy tops on infants', children's and anklet hosiery. Boys' golf and half hose with plain, sewed in or Hirner feet are other uses for this machine. The patterns possible on this machine are practically unlimited.





At left, Fig. 2, the Standard Model L. Above, Fig. 3, half-hose samples L-1, L-2, L-3, and L-4. (In the hose reproductions, the wide variety of color pattern is not shown, of course, in these one-color cuts, but the pattern variety will be apparent. Most of the original samples are in various color combinations) . . . . . .

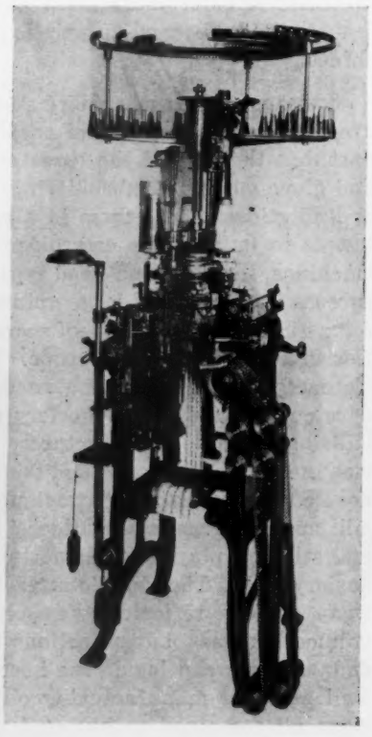
Of two stationary cylinder machines, Standard Trump Brothers Machine Company's Standard Model L is next considered. The Standard Model L individual needle, embroidered wrap machine has the possibility of a wrap yarn for every needle. The cylinder is stationary with revolving cam ring. It is particularly suited to wool and lisle golf hose and half hose as well as children's hose.

Stationary Cylinder, Embroidered Wrap—Standard Model L

A cut of the Standard Model L (Fig. 2) and half hose patterns L-1, L-2, L-3 and L-4 (Fig. 3) illustrate, respectively, this machine and patterns for same. This machine is built on the Standard H frame, in 36- and 48-gauge and up to 3½ inches diameter, 200-needle cylinders. It is equipped with a yarn change, so that the body of the sock may be made of one yarn and the heel and toe of another. The pattern devices include a shogging device for fifteen steps or less zig-zag work and a trick wheel with 14 steps of patterning. This machine is especially adapted for making all-over patterns of mercerized or other fiber wrap yarns on wool or lisle body constructions. The half hose patterns (Fig. 3) illustrate designing possibilities. It will duplicate patterns made on full fashioned machines and semi-automatic foreign machines and is claimed to be more automatic and of a higher speed than has been obtained heretofore.

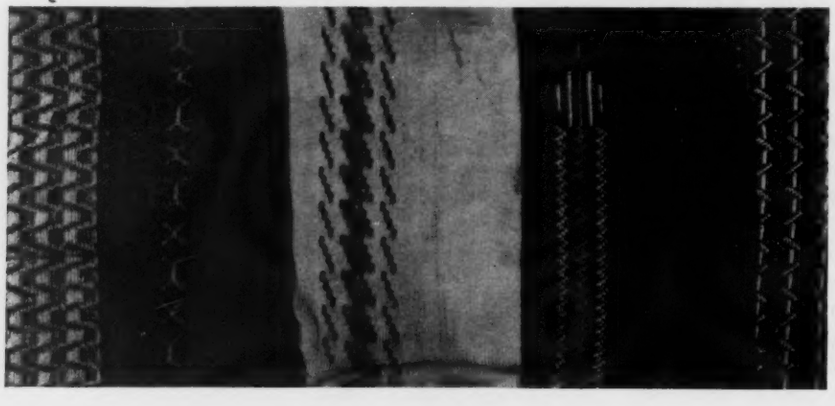
Fidelity Type "EL" Wrap Stripe Footer.

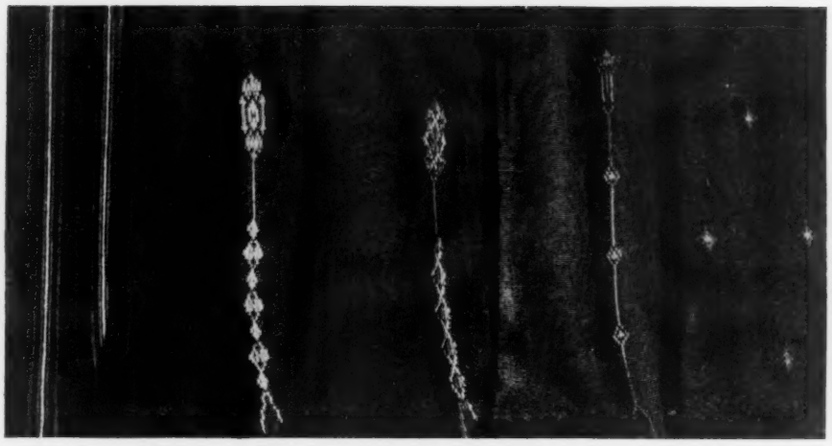
Fig. 4 illustrates the Fidelity Type EL wrap stripe machine. This machine for transfer and string work is obtainable with 200 or 220-needle 3½ inch



At right, Fig. 4, the Fidelity Type EL Wrap Stripe Footer

Below, Fig. 5, showing the variety of wrap stripe work, samples EL-1, EL-2, EL-3, EL-4, and EL-5 produced by the machine shown in Fig. 4 . . .





At right, Fig. 6, the Banner Wrap Stripe machine. Above, Fig. 7, five of the latest pattern possibilities, samples B-1, B-2, B-3, B-4, and B-5 . .

diameter cylinders. Individual needle control wrapping yarn for every needle required is available. This machine is equipped with a shogging attachment to move the entire wrap stripe head over a path of twelve needles, back and forth and has the possibility of giving three colors on one needle.

This machine has a complete yarn change in the heel and toe, is designed for plaiting and is substantially built. The pattern chain and length of leg and foot chain are independent.

Straight vertical designs, zigzag, clocks and panels are obtainable with as much color as desired. Fig. 5 samples EL-1 to EL-5, inclusive, are examples of work from this machine.

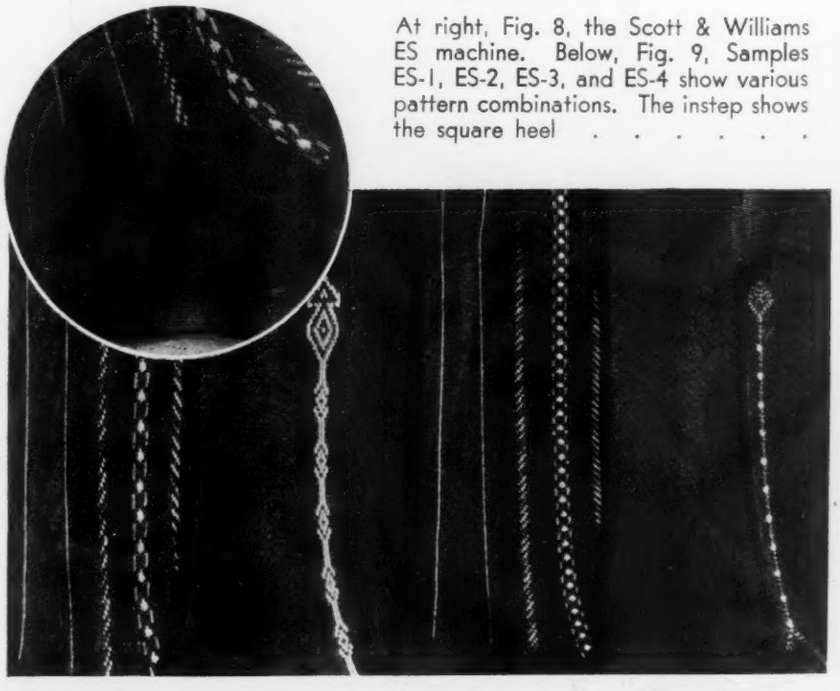
Banner Wrap Stripe.

A cut of this machine is shown in Fig. 6, and five of the latest pattern possibilities—B-1, B-2, B-3, B-4 and B-5—are illustrated in Figure 7.

The Banner wrap stripe is now obtainable in all cylinder sizes from 2½ inch to 3¾ inch, and gauges from 36 to 70. Compared with the first model, the present improved Banner wrap stripe machine is built on a broad base with heavier driving mechanism for the wrap yarn carrier, to give proper balance. Broader stitch adjustment control is an added feature.

Improved take-up controls for the wrap stripe yarns permit the use of rayon, mercerized cotton or spun silk.

The patterning range has been increased so that the machine now has the possibility of 14 steps, 24 feeds and a 72 move pattern drum. Triple color change for clocking, color change on all feeds, color within color and color beside color are features now



At right, Fig. 8, the Scott & Williams ES machine. Below, Fig. 9, Samples ES-1, ES-2, ES-3, and ES-4 show various pattern combinations. The instep shows the square heel . . . . . .

See It at the Show!

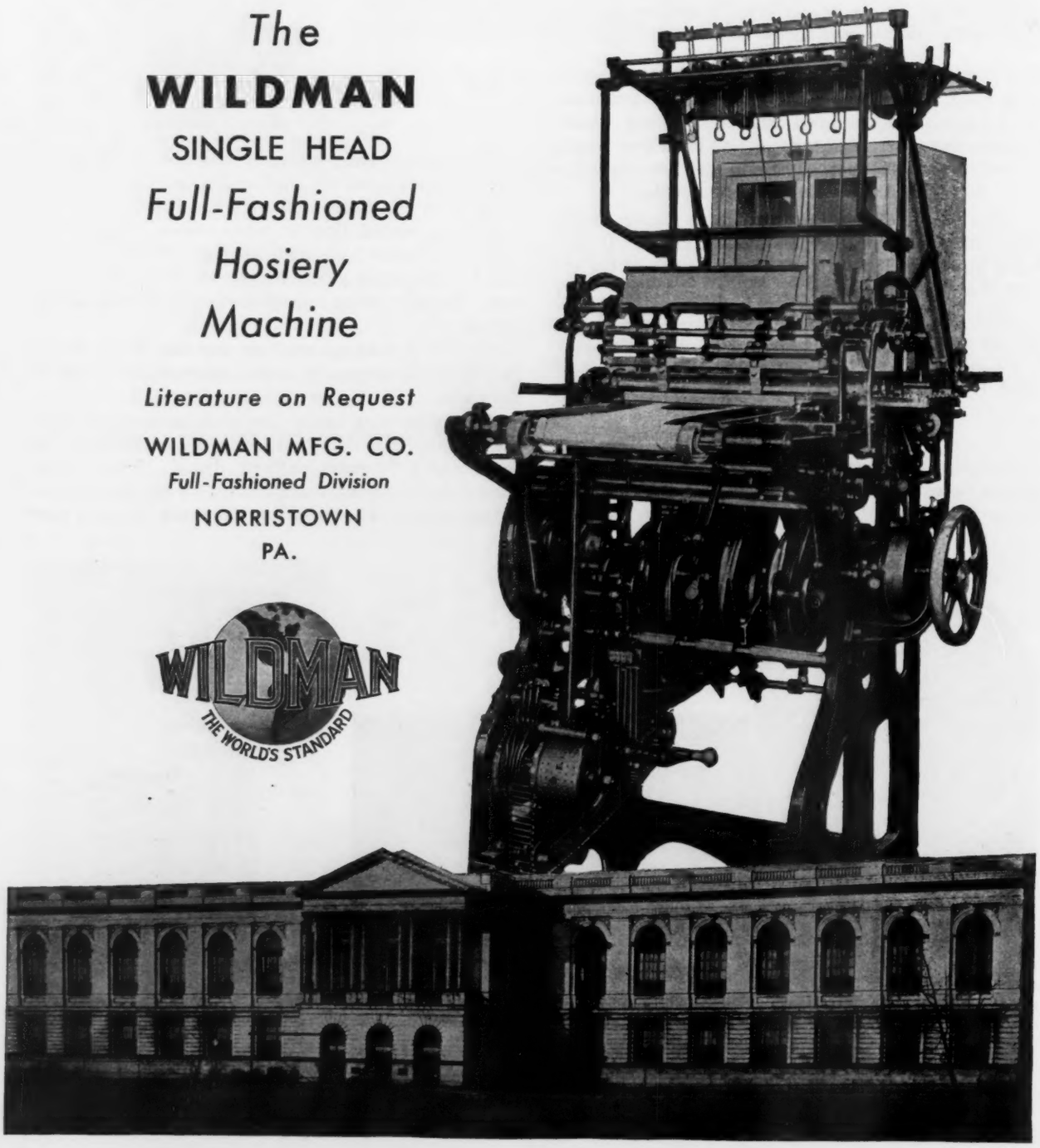
Please consider this a personal invitation to visit us at the Knitting Arts Exhibition, and see in operation the new machine you have heard so much about.

The
WILDMAN
SINGLE HEAD
Full-Fashioned
Hosiery
Machine

Literature on Request

WILDMAN MFG. CO.
Full-Fashioned Division
NORRISTOWN
PA.

WILDMAN
THE WORLD'S STANDARD



SCRAP ALL THOSE OLD ESTIMATES!

WILDMAN
THE WORLD'S STANDARD

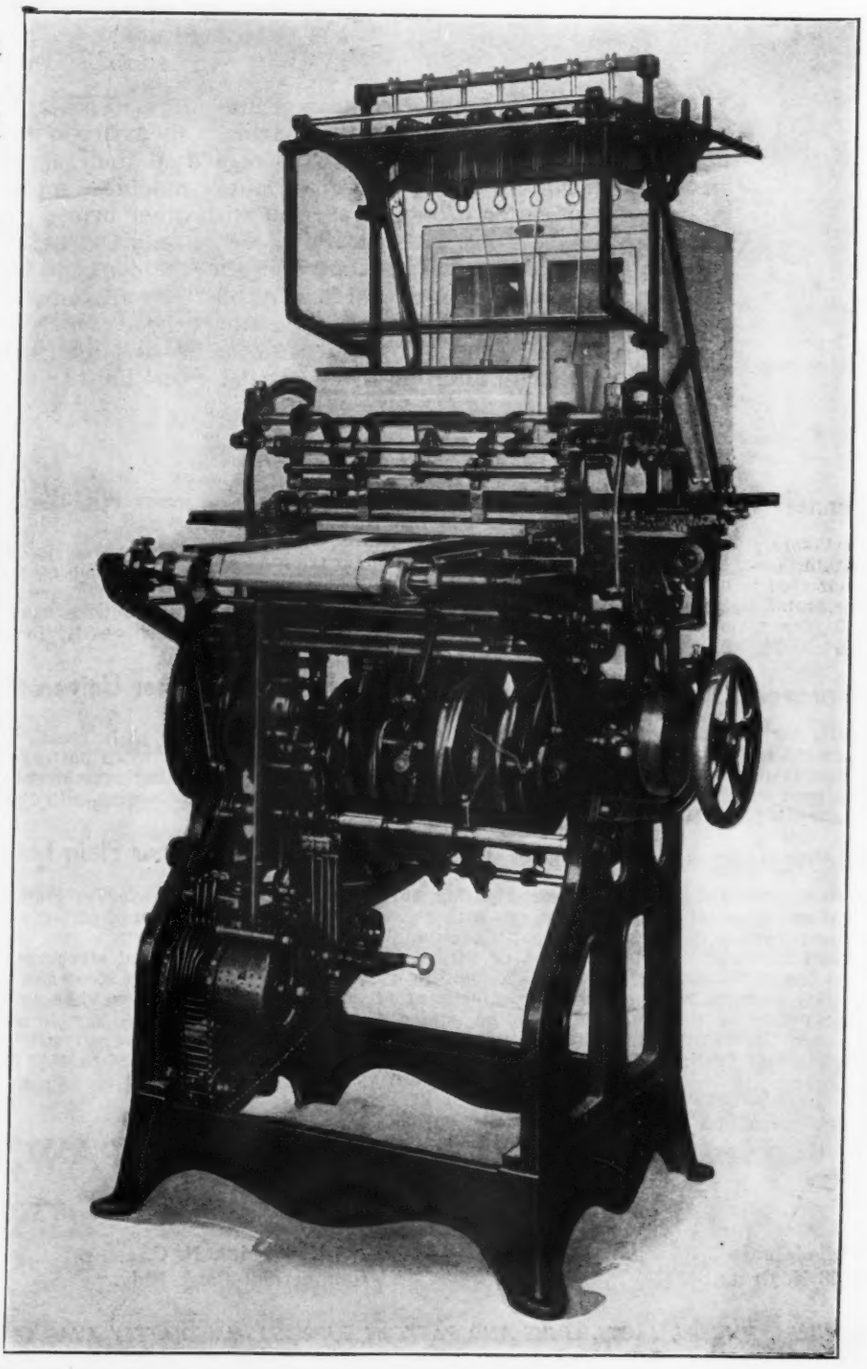
You can now start in the manufacture of full-fashioned hosiery at approximately 1/10 of the former cost.

•

The
WILDMAN
SINGLE HEAD
Full-Fashioned Hosiery Machine

Literature on Request

WILDMAN MFG. CO.
Full-Fashioned Division
NORRISTOWN,
PA.



BANNER HOSIERY MACHINES

offer the world's widest selection of improved machines for knitting highest grade hosiery

BANNER MACHINES FOR HALF-HOSE

Wrap Stripe, Automatic True-Rib-Top, Split Foot, 12 Step, Mesh, Jacquard, Combination and Plain Banner Machines.

BANNER MACHINES FOR GOLF HOSE

12 Step Jacquard, Mesh, Rib-to-toe, Combination and Plain Banner Machines.

BANNER MACHINES FOR LADIES' HOSE

Mesh, Single-top, Nib-Jack, Split-Foot, Rib-to-toe, Plain Banner Machines.

BANNER MACHINES FOR CHILDREN'S HOSE

Wrap Stripe, Jacquard Rib-to-toe, 12 Step, Mesh, Plain Banner Machines.

HEMPHILL Company's control of the more important hosiery patents, extremely simple design in the machines themselves, and the company's policy of designing improvements with regard to their application to equipment already running, all contrive to give Banner machines a low first cost which can be easily appreciated after comparison with other prices. Banner machines can be set up on the floor with an allowance of only 24" between machine centers. They are designed so that all controlling mechanism can be easily reached from the front of the machine, so that needles may be replaced without readjustment of the machine and with a self-cleaning sinker head which permits automatic removal of fluff and dust. Power requirements are but from 1/12 to 1/8 hp. per machine, so that in addition to low initial costs, Banner machines offer unusual economies in operation.

Banner Wrap Stripe Machine

24 Colors, 14 Steps, 72 move Pattern Drum. Knits Color within Color, Color beside Color and permits double or triple color change in the vertical design. Can be equipped with horizontal striper for knitting plaid and other fancy effects —5 yarn changes and binder, high splice and double sole— 2½" to 3¾" 200N. to 300N.

Improved Banner Split Foot Machine

Knits leg and instep from same cone of yarn, eliminating yarn change defects and uneven dyeing. No trace of fringe where instep joins toe, heel and sole reinforcements. Can be equipped with narrow extra high splice and low heel attachment—2¼" to 3¾" 180N. to 340N.

Banner Jacquard and Banner 12 Step Machines

Knit any form of pattern by reverse plating, horizontal, vertical and diagonal stripes, figures, etc. with almost unlimited pattern range. Can be equipped with horizontal striper operated from regular pattern drum, or with universal stitch attachment for three color work. The pattern drums can be quickly changed with no need for adjustment of any knitting points of the machine. Can be equipped with the Banner Universal Stitch (mesh) attachment if desired— 2¼" to 4¼" 100N. to 220N.

Banner Nib Jack Machine

Knits a correctly fashioned ladies' stocking with reinforced sole, heel and toe; drops completed stocking. French or pointed heels are knit under nib jack precise control. Equipped with mock fashion, step toe and small heel attachments—3¼" to 3½" 240N. to 340N.

Banner Universal Stitch (Mesh) Machine

Knits plain mesh, pattern mesh and float stitch patterns; mock wrap patterns and lace and mock wrap clocks with clocking attachment; also knit 3 color reverse plating in combination with Banner 12 Step. All sizes from 2" to 3½".

Banner Plain Machine

Knits average grades of hose and half hose with any combination of plated yarns. Ladies' machine knits string work or inserts a few courses of fine breaking thread between completed stockings, as desired. Half hose machine automatically stops and machine adjusts for rib transfer. Four to six yarn changes and binder. Can be equipped with high splice and double sole, running-on, 12 Step reverse plating and universal stitch attachments; vertical and horizontal striper—2" to 4½" 5 to 30 needles per inch.

HEMPHILL COMPANY, PAWTUCKET, R. I.

General Sales Office and Machine Exhibit, 93 Worth St., New York, N. Y.

Philadelphia
6628 N. Gratz St.

High Point, N. C.
Commercial Bank Bldg.

Chattanooga
James Bldg.

NEEDLES, SINKERS, JACKS, LINKS AND PATTERN SUPPLIES IMMEDIATELY AVAILABLE AT ALL BANNER BRANCH OFFICES

available.

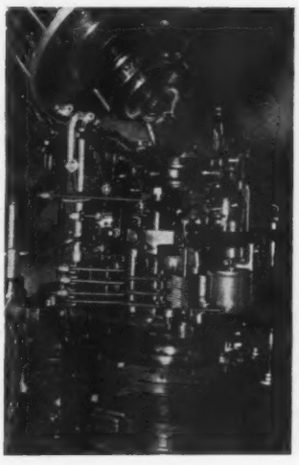
In addition to double sole and high spliced heel an extra splice can now be knit in the toe for extra wear.

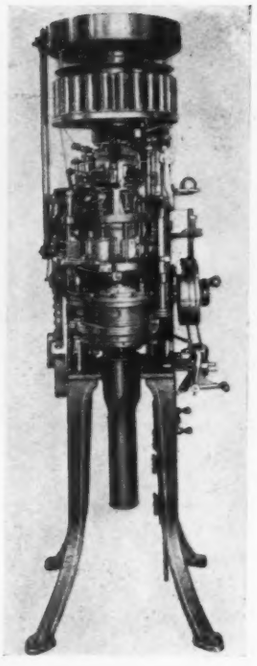
Operators of early models can purchase parts necessary to bring their machines up to date with all new features.

A broad range of body yarn constructions combined with the wide pattern range effects and other added features now meet the many heretofore desired demands of the trade for embroidery pattern effects.

Scott & Williams E S Machine.

A full view of the E S Machine is shown in Fig. 8. This is the spiral machine with a needle wrap tern head adapted to it. In putting on the wrap head, it changed the 25 step spiral to an 18 step wrap pattern machine with a three-color horizontal yarn change in the wrap. The pattern mechanism of the E S machine is the panel wrap type with needles selected to be wrapped in panels by wrap fingers. Color changes may be made horizontally. This machine, like the spiral, carries attachments for high spliced heel, double sole and "Gussetoe" and is available in 36, 48, 54 and 70-gauge up to 260 needles.





At right, Fig. 10, the Standard Model 80-W. Above, Fig. 10-A, showing accessibility of mechanism . . . .

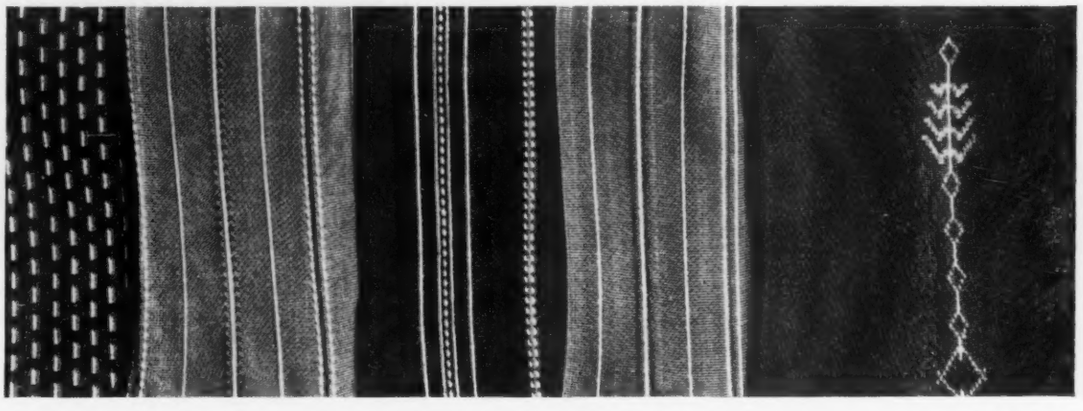


Fig. 11, showing samples W-1, W-2, W-3, W-4, and W-5, of half-hose made on the Model 80-W machine shown in Fig. 10 and Fig. 10-A . . . . . .

Half hose samples from this machine are illustrated in Fig. 9. Sample ES-4 is a 220-needle, two-color clock pattern and sample E S-2 is a 260-needle clock pattern.

The new features which have been added to this machine during the past year greatly increase the pattern and design possibilities.

This improved machine now has a 36 bobbin wrap head instead of 18, thereby allowing the use of 36 wrap yarns for wider range wrap pattern variation. In addition to the "Gussetoe" this machine is now equipped to make the latest square heel of the type advertised as made on the S. & W. Model K Spiral. Samples E S-1 and E S-3 (Fig. 9) illustrate two half-hose patterns made on a 260 needle improved machine and showing the latest *square heel.* Twenty-six wrap fingers have been utilized in each pattern with three colors in the center panel and three different colors in the panels on each side of the center.

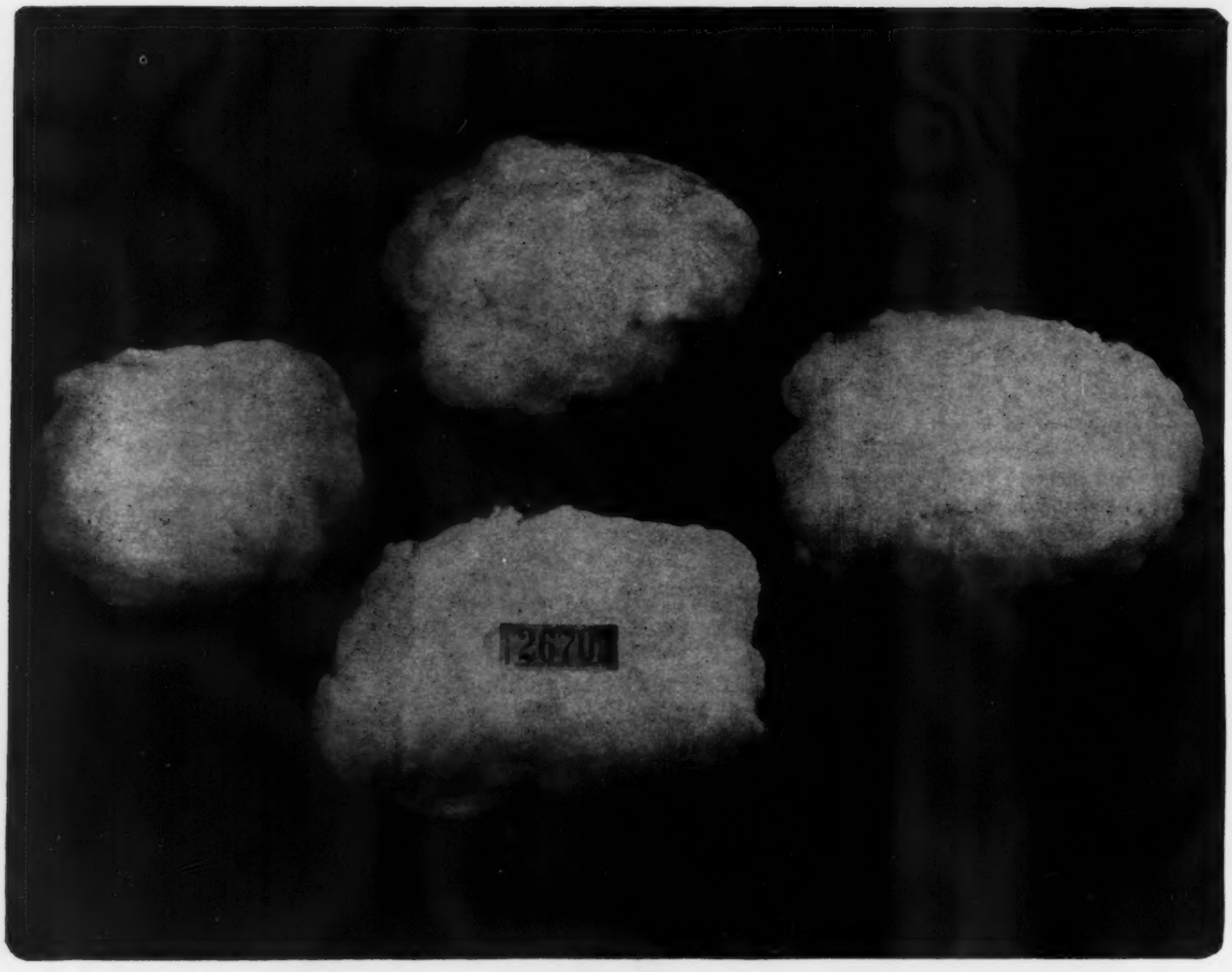
The wrap yarns usable consist of spun silk, pure silk, mercerized, immunized mercerized, and viscose as well as acetate process rayon.

Standard Model 80-W.

The Standard Model 80-W needle wrap machine is illustrated in Figure 10 and Fig. 10-A shows a close-up view of the head.

This machine is built on the Standard Model H frame, and is a double head machine, utilizing the 25 step spiral mechanism for selecting the needles similar to the Scott & Williams machines. The machine is of the revolving cylinder type, with individual needle type wrap mechanism similar to the Standard Model L, permitting 80 possible wrap lines. Wrap yarns usable are the same as for the E S machine.

Samples W-1, W-2, W-3, W-4 and W-5, illustrating work from the 80-W machine, are shown in Fig. 11. Clocks, panels, verticals and all-over patterns including graduated color (shaded with different yarns on adjacent needles) and a clock within a clock are



YARNS

A STORY IN ITSELF

To make fine furniture, good woods must be used.
To make fine yarns, good cottons must be used.

The cotton that goes into B&C Quality Yarns is carefully selected. Not a bale is used until it has been sampled four times as shown above, and has passed rigid tests by an expert cotton classer. These tests determine accurately the length of staple, grade and color of each individual bale.

These tests are the first of many that precede and follow every major operation in the manufacture of B&C Mercerized Yarn—tests and inspections that are carried through to the final cone just before it is packed for shipment.

These tests are your guarantee that B&C Yarn is Quality Yarn, always.

BOGER & CRAWFORD

PHILADELPHIA, PA.

FRENCH CAMPBELL JR., CO.
417 Provident Bldg., Chattanooga, Tenn.

DONALD R. JONAS
Lincolnton, N. C.

WILLIAM R. RIETHEIMER
222 W. Adams St., Chicago, Ill.

possible with this machine. With 80 yarns it is possible to use as much color as is desired, particularly in making verticals, broken verticals and panels.

These machines are available in desired gauges and number of needles up to 260, in 3½ inch cylinders. They are equipped with yarn change, plaiting, high splice and double sole fingers and "Gussetoe." Operating speeds are the same as for the panel wrap type E S machine and accessibility is featured (See Fig. 10-A).

This outline of true needle wrap embroidery pattern equipment furnishes an impartial review of development to date, and in its preparation the writer has in mind the interests of the hosiery industry in general and the fancy manufacturer in particular.

Loking back five years, it must be said that remarkable progress has been made. Improvement will continue to appear, but present equipment as now offered, if properly operated with intelligent designing, is in position to command profitable return.

Future development of the respective needle wrap machine manufacturers will be adaptable to present units, thereby enabling owners to keep them up to date at all times if they so desire.

A full range of pattern effects, features and constructions need not be expected from any one machine, but with the field as outlined to choose from everything desirable may be produced.

Exclusiveness, quality, refinement and limitation of production equipment are important factors for profitable operation. At the present time, profitable operation of needle wrap equipment is within the control of manufacturers of this particular class of production. This position can and should be maintained, and be sure your costs are known, including depreciation, obsolescence and a fair return for labor, then get a reasonable profit, or do not accept the order.

Plans for National Cotton Week

(Continued from page 16.)

attract consumer interest and consideration to household cottons, such as towels, blankets, sheets, tablecloths, etc. Second, women's fashion authorities are of one opinion that the style prestige of cotton is now at a new peak. Thanks to the bestowal of further favor by American designers and Paris dressmakers, cottons loom larger in the public mind as the unique means for women of all income-levels to keep abreast of fashion without resort to any 'buying holidays'. Moreover, on the basis of last summer's observance an increasingly large number of men will be turning to cotton suits in the selection of their summer wardrobes.

"The keystone of the enthusiastic support on the part of merchants is quite properly the profitable results that were recorded last year. The newspaper advertising of cotton merchandise of all kinds and types during National Cotton Week last year not only reached an unprecedented high mark for a single week, but proved to be a profitable instrument as to both immediate response and in giving cottons a sales impetus that continued throughout the summer."

Capitalizing on the versatile serviceability of cotton textiles, this year's theme, "Everybody Uses Cotton", is pictorially featured in colorful display posters that will be furnished to merchants by the Cotton-Textile Institute. Other material, including bulletins with sales promotional ideas and display suggestions will be made generally available to all stores, and special co-operation will be extended to resident buying offices.

Serving on an advisory committee with Mr. Sloan, in connection with National Cotton Week, are the following representatives of the industry:

B. B. Gossett, president, American Cotton Manufacturers Association, Charlotte, N. C.

Ernest Hood, president, National Association of Cotton Manufacturers, Boston, Mass.

Magruder Dent, president, Association of Cotton Textile Merchants, New York City.

W. P. Fickett, managing director, Textile Fabrics Association, New York City.

W. L. Pierce, president, National Association of Finishers of Textile Fabrics, New York City.

Flint Garrison, director general, Wholesale Dry Goods Institute, New York City.

Lew Hahn, president, National Retail Dry Goods Association, New York City.

New Banner Memo Book

AVERAGE measurement tables shown in the Banner 1933 Memo Book which will be distributed by Hemphill Company, makers of Banner hosiery machines, at the Knitting Arts Exhibition in Philadelphia, will contain a number of figures at variance with those offered for adoption as commercial standards in the Association's special news letter of January 18th.

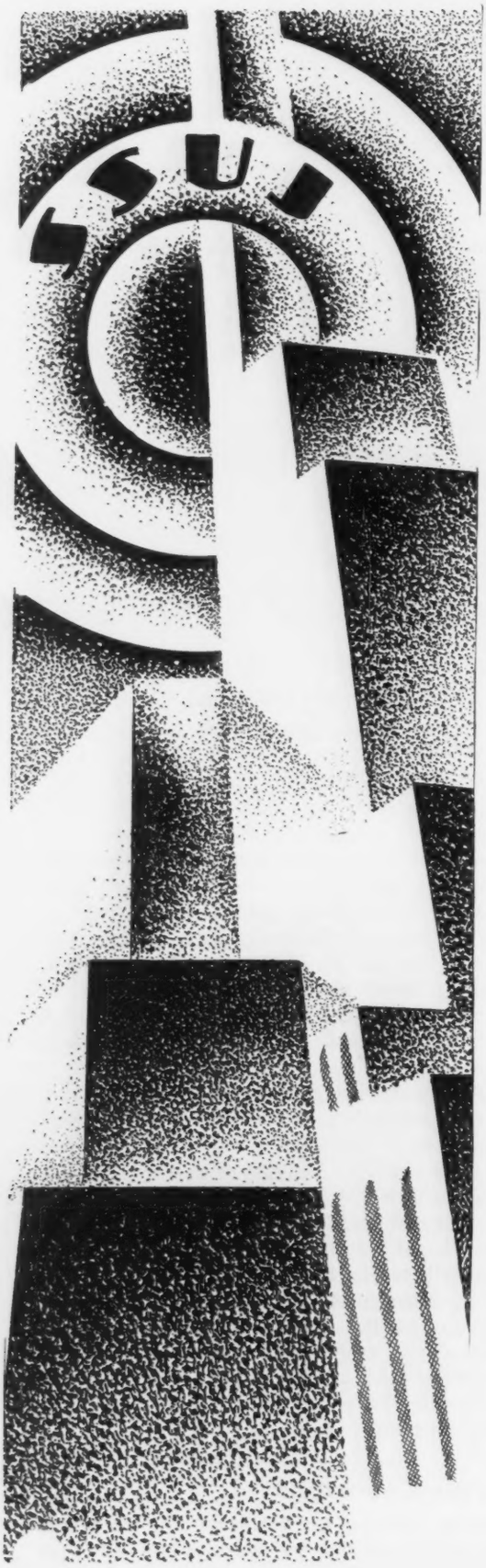
The Banner Memo Book, published each year at show time by Hemphill Company, contains yarn conversion tables, correlation of shoe and hosiery sizes, average measurement tables and other data which has tended to give the Memo Book the importance of a standard reference work throughout the hosiery trade.

Average measurements given by Hemphill Company are based on machine orders and reflect the trend in measurements as practiced by the mills themselves throughout the country. Lengths of hosiery and folded cuff lengths shown by Hemphill vary from the Association's suggestions for standards by ¼-inch to ½-inch on the short side. In addition to hosiery lengths and rib top or folded cuff lengths Banner's tables include recommendations for cylinder diameters and numbers of needles for gauges in common use.

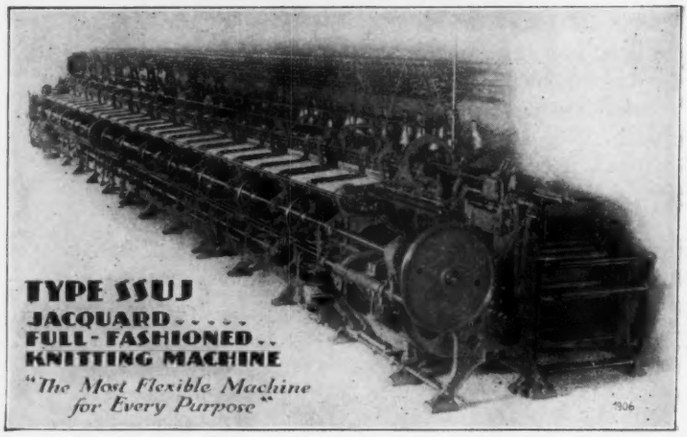
Continuing the practice adopted two years ago, this year's Memo Book will also offer a completely correlated table of cylinder cuts, gauges, points and sinkers for Banner hosiery machines.

Phi Psi to Meet April 28-30

The annual national convention of Phi Psi textile fraternity will be held at The Royal Pines Hotel, at Pinewald, N. J., on Friday, Saturday and Sunday, April 28, 29, and 30th.



SCHUBERT AND SALZER



THE MACHINE OF THE FUTURE

Every indication is that the tide has turned—that better days lie ahead—that soon the hosiery industry will again be on an even keel.

These strenuous times have taught us at least one outstanding lesson—that is, that only those manufacturers who are eternally keeping their plants primed to the peak of perfection by installing the most advanced machinery can be successful.

Schubert & Salzer equipment is always "a step ahead" —meaning always faster production and better production. The latest example of this advanced equipment is Schubert & Salzer Single Unit Machine Type SSUJ. It is indeed the "machine of the future."

We cordially invite you to send for complete information. And—a demonstration can be arranged.

ALFRED HOFMAN

INCORPORATED

West New York New Jersey

KNITTING KINKS

Practical Discussions by Cotton's Readers on Various Knitting Subjects

The Care and Operation of the Banner Split-Foot Machine

Article One

(This article begins a series of discussions on "The Care and Operation of the Banner Split-Foot Machine". The author will discuss next the matter of sinker cam adjustments on the split-foot machine, and later articles will take up other parts of this machine for practical discussion. Then it is planned to discuss other types of Banner equipment.

Readers are urged to clip these discussions in order that they may have a complete file of these articles. The author is willing to answer any specific inquiries concerning these machines.—The Editor.)

EDITOR COTTON:

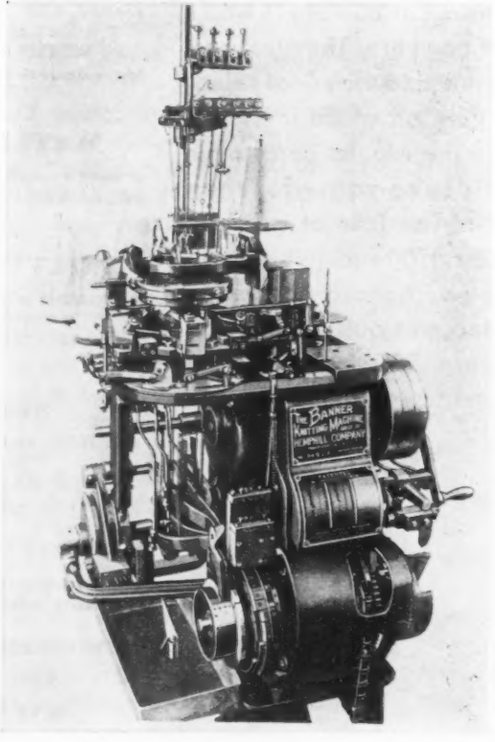
The KNITTING KINKS department of your magazine has been of a great deal of help to me and no doubt to other readers also. We of the knitting industry look forward to the timely and practical discussions of the many problems pertaining to knit fabrics, knitting machines, etc., which appear regularly in that department.

As a contribution to this department I would like to present a discussion on the care and operation of the Banner split foot machine, covering in a general way both the old and new machines. In addition to care and operation, an attempt will be made to describe the purpose of the split foot machine and the improvements in the new model.

First, a bit of history is in order. About twelve years ago the first split foot machines were put on the market. The main idea at that time was to make a half-hose with a leg and instep of one color and a white heel, sole and toe. Black and white were the predominating colors in all-mercerized construction at first, then other color combinations were added. Next came numbers made of boiled-off and dyed pure silk, using bleached mercerized yarns for the heel, sole and toe; and these were soon followed by others in which every kind of yarn that could be run on the machines was used.

In addition to producing the various kinds of hose just described, quite a number of undesirable features were eliminated by the split foot machine. To begin with, the machine did away with the double sole attachment, and this in itself is by no means a small item from a machine fixing standpoint. A great deal of time must be spent by the fixer in order to keep the double sole in an even line on both sides, preventing and correcting misplaiting troubles, etc. It must also be kept in mind that the split foot machine wiped out the double sole cutting operation. A silk number made with a mercerized heel, sole and toe, on a split foot machine, has a much neater appearance than one made on a plain circular machine; it does not have a ragged fringe on either side. No doubt the machine manufacturers had many of these things in mind when they built the first split foot machines.

In discussing some of the trials and troubles common on the old split foot, I will say that a blueprint book, complete in every detail, is furnished to all owners of the new split foot machine. Names and numbers of parts as shown in this book will be used in discussing the new machine.



The new model split-foot machine.

It does not seem quite fair to say that the old machine was improved; on the contrary, a new machine,

We're Awfully Fussy

AND SO ARE OUR CUSTOMERS!

WE are particular about the mills we sell. We are definitely interested in their problems. Our customers are mills that conform to the high standard of our product and our service.

Likewise, our customers won't buy just any yarn. They test and experiment and their final selection is yarn on which it is safe to hinge the reputation of their fabrics—Enka yarn—for they know that The Fate of a Fabric Hangs by a Thread.

Have you noticed how many of the season's outstanding successes use Enka yarns? Here are just a few of them.

LIN GEES
smart new underthings designed by Elizabeth Hawes made by **BETHLEHEM TEXTILES CO.**
introduced by LORD & TAYLOR

●

MATLECOR CREPE
a new rough crepe with matelasse effect—**FEDERATED TEXTILES, Inc.**

●

SILVETTE PRINTS
beautiful prints on light, medium and dark grounds
ARTHUR BEIR & CO.

●

SEAL CREPE
the fifth season of this successful flat crepe
GALEY & LORD

●

CREPE COLETTE
an iridescent French crepe especially adapted to fine undergarments
N. FLUEGELMAN & CO., Inc.

●

SMART CREPE
a new crinkled crepe in prints and plain colors — **PACIFIC MILLS**

IF you demand yarn that is uniformly excellent, that runs smoothly without interruption, that has proved its merit by holding its users season after season, we know you will like Enka yarns.

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AMERICAN ENKA CORPORATION
271 CHURCH STREET, NEW YORK
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called the 1931 model, has been built. Something was lacking on the old machine, which the new one has a-plenty—for want of a better word we will call it flexibility. It was very difficult at times to make the old machine produce exactly the kind of goods the mill wished to offer to its customers. There was little chance, for instance, of running extra heavy or light yarns in various parts of a sock, and try as you may, it generally resulted in putting on the kind of yarn the machine would run. But what a difference with the new model! The boss decides what yarns he wants run, and if he is at all within reason (most bosses are), just put the yarns on the machine, make a sock or two and, with a few adjustments, that's that. It has flexibility where you need it most.

Improvements on New Machine.

One of the common faults on the old machine was the necessity of using two separate cones of yarn to make the leg and instep. One strand of yarn would be threaded through what is generally called the leg finger, and would be used to make the entire leg down to a point about one inch or more above the heel; then a yarn change was made when the machine began to reciprocate and make what is usually termed the high splice. At this same time, the auxiliary yarn lever (3099) would drop into position and feed the same kind of yarn as used in the leg from another cone, up to a point where the machine changed onto the heel. The auxiliary yarn lever would then be lifted out of position and would again drop in as soon as the heel was completed and continue to feed yarn to complete the instep down to the toe. The same yarn as used in the splice or other yarn if desired would also drop in when the heel was finished and be used for the sole down to the toe.

The necessity of using two different cones of the same kind of yarn as just described brought on a number of difficulties and these, apparently of little importance, would prove to be costly in many ways. Regardless of what kinds of yarn were used it was difficult to keep exactly the same amount of tension on the leg yarn and the instep yarn, and failure to do this would cause a wavy and uneven appearance between the leg and instep fabric. Sinker, stitch and raise cam adjustments were hard to keep right, for it must be remembered that the regular rear stitch, sinker and raise cams had to be set exactly the same as the front and rear auxiliary stitch, sinker and raise cams, and failure in matching these adjustments closely would cause uneven knitting between leg and instep.

Now, with all of the different cams properly set there still remained the matching of adjustments which control the regular cam plate and the auxiliary cam plate, and failure in this simple task would again cause uneven fabric which is one of the things that people don't want in hose.

A great deal of time had to be spent by the fixer keeping the old machine making hose that would not vary in size, and this was caused mostly by the two cone for the leg and instep method, simply because the cone which fed the leg yarn would diminish in size faster than the instep cone, causing a variation in drag off of the cones which of course would affect sizes a great deal. It was impossible to avoid this trouble entirely and it could be reduced by swapping the cones of yarn, but this again made more work for the knitter. When pure silk numbers were made on the old machine there was always more or less trouble caused by the instep cones drying out due to their not being consumed as fast as the leg cones. This also could be controlled by swapping cones or using humidifiers, but again there enters more work or more expense.

All of these apparently minor troubles are by no means the best thing for even knitting, good fabric and utilizing the machine fixer's time and energy to the best advantage. In addition to the various knitting troubles the two-cone method of the old machine meant two chances for press-offs and therefore more waste, two chances for variation in the yarn itself which means more seconds, uneven dyeing, twice as many part cones to return to the yarn department when styles or color combinations are changed, which is quite an item in these days of color craze, and twice as many part cones of yarn to re-wrap, store and keep track of during changes.

A great deal of trouble, time, energy and expense consumers were done away with in the design and building of the new 1931 model split foot machine. This machine knits the leg and instep from one cone of yarn and completely eliminates all of the trials and troubles of the old two-cone method, part of which have been mentioned.

Closer adjustments can now be made to favor the heel, toe and sole without affecting the leg knitting. It is necessary to set only two sinker, stitch and raise cams to get even knitting in the leg and instep where it took three each of these adjustments on the old machine. In these days of murderous competition it is vitally important for a hosiery manufacturer to have machines which will produce good merchandise at a low cost, machines which will stay fixed and run without a lot of coaxing and petting or hammering and cussing for that matter, machines which will fill present demands and be equipped to produce new and advanced styles for future demands.

It is not my intention to leave the impression with the reader that it is impossible to knit hose of good quality and appearance on the old split foot machines. Quite the contrary is true, for many thousands of dozens have been made on these machines and still are being made, for that matter. Careless machine adjusting, failure to replace badly worn parts, and the use of parts not made by the machine builder, have helped to increase the amount of inferior goods made on the old split foot machine and for which the machine could not be blamed. One of the simplest and surest ways of getting into trouble with a split foot machine, old or new, is to be constantly tinkering with the sinker cam and bumper bracket adjustments. Incidentally, this seems to be a chronic shortcoming with many fixers, not only on split foot machines, but other types of circular machines as well.

The next discussion of this series will begin with sinker cam adjustments on a split foot machine. Other features will be covered in later installments.

CONTRIBUTOR NO. 6206.

"Zebra Stripes" When Using Boiled-Off Silk For Re-Inforcement.

More opinions on this problem, discussed by others in December issue. . . . . .

EDITOR COTTON:

I am writing to reply to the question of "CONTRIBUTOR NO. 6146", who asked how to eliminate the shade variation in the heel, sole and toe, caused by boiled-off silk splicing. He says that he is making a full-fashioned stocking with a boiled-off silk re-inforcement, run in without plaiting, in the heel, sole and toe; using a six-thread boiled-off yarn for re-inforcing a 45-gauge three-thread stocking. He explained that when the stocking is dyed and boarded, he has trouble with shade variations that give a zebra stripe effect throughout the heel, sole and toe, an effect resembling one of misplaiting in a silk stocking plaited with cotton on the inside. He wanted suggestions as to how to remedy this without resorting to plaiting or knitting the stocking with a split sole.

This trouble is always a characteristic of boiled-off silk splicing. In boiling-off the silk, all of the soaking oils are removed, and in some instances the silk is not thoroughly rinsed and some traces of alkali are left in the silk, which acts as a resist to the dyestuff and causes it to dye lighter. The boiled-off silk should be treated in a finish bath after it is boiled off to give it a greater affinity for the dyes. It would probably help considerably to run the splicing yarn through a wick box containing a certain amount of backwinding oil emulsion.

The throwster who boils off and cones the splicing could experiment with an after treatment to give the boiled-off silk similar dyeing qualities to the gum silk boiled off in the hosiery.

This seems to be a problem for the knitter and the throwster to work out together. A better union than that shown in the sample which this contributor submitted might be obtained by the aid of a good penetrating oil in the dye bath.

CONTRIBUTOR NO. 6148.

EDITOR COTTON:

This replies to the question of "CONTRIBUTOR NO. 6146." He said he is making a 45-gauge, three-thread, full-fashioned stocking, with a six-thread boiled-off silk re-inforcement in the heel, sole and toe; and when the stocking is dyed and boarded, he has trouble with shade variations giving a zebra stripe effect throughout the heel, sole and toe, similar to misplaiting in a silk stocking plaited with cotton on the inside.

One of the samples he sent was partly unraveled, and the three-thread yarn was found to have 20 turns to the inch, while the six-thread had five turns. Primarily, it is this difference in twist that is the cause of the streakiness, as the finer and highly twisted yarn dyes and reflects the light differently from the six-thread. This along with the varying position of the three and six-thread loops in the splicing, results in light and dark streaks. Where the three-thread covers the six thread, a dark streak shows, and with the position reversed a light streak shows.

Another thing that might accentuate the trouble (disregarding the twist) is that the different raw silks used for the three-thread and the six-thread may in themselves act quite differently in their natural affinity for dyestuff.

Generally our splicings in high twist numbers, similar to the sample sent in, have been running fairly clear. Occasionally, however, we get a few that are quite streaky and some shades seem to show this up more than others.

In conclusion, I can see no advantage in boiling off the splicing yarn previous to knitting. Finally, if the construction of the toe was changed slightly by leaving out the three-thread and having instead a toe with two ends of six-thread and a three-thread in the toe tab, streakiness would be avoided at this point, where the defect was the worst.

CONTRIBUTOR NO. 6149.

Answers to Full-Fashioned Questions.

EDITOR COTTON:

Your "CONTRIBUTOR NO. 6091" has asked some interesting questions on full-fashioned manufacturing.

He first wanted to know what causes break-outs at transfer corners. Corners are usually weakened by a careless knitter who fails to lay his ends properly. For instance, the main thread may be four thread and the splicing six or seven-thread silk or 100s/2 mercerized plaiting. If the end is not laid all the way to the very inside corner needle, the corner is only as strong as the four-thread silk instead of being 4 and 6, or 4 and 100s/2. This leaves the corner weak and it breaks down under any real strain.

He next asked what could be done to retain the style advantage of the narrower width French heel now in vogue and yet give the customer maximum wear under all conditions. I notice that there is a pad advertised to be placed over the inside of the heel of the shoe, giving a soft material against the heel of the hose. I think this is a good idea and about all that can be done toward increasing the wear of these stockings by the consumer.

This man's final question wanted opinions as to what characteristics of a full-fashioned needle are considered the most important and what is the best way to test out various lots of needles.

The most important thing in a full-fashioned needle is temper, which is best judged by holding the shank in the left hand, and bending the needle with the right hand until it is in the shape of a square. If it will stand several bends like this and hold a straight line, it is all right. Next bend it until the needle head touches the shank, and if it breaks it is harder than necessary.

Next, the beard should be soft enough to allow raising without snapping off, but it must not plier easily.

Next in importance is the head of the needle which must be the same in all needles of the same gauge. Watch for needles with the eye over to one

side of the needle. This will wear and become sharp as a knife, causing cut holes—the variation in heads causes lines. Make certain that the needle is not round shouldered—hanging over as though the beard was too heavy for the needle to support. This will make narrowing holes. Needles must all be the same total length, or lines will appear.

The next thing to do is to ask the needle maker to supply a blue print of the needles being purchased. He will be pleased to do that. Then a man should purchase a micrometer at a hardware store and proceed to "mike" the needle personally.

Another test is to hold the needle by the butt in the left hand, with the beard on top away from you, and look along it for line. If the beard is so much over to one side that it can be pliered back without showing a twist, it is no good. If the whole beard is not straight up and exactly opposite to the butt, or if the eye is over to one side, it is no good.

CONTRIBUTOR NO. 6108.

How to Reduce Needle Breakage on Seamers.

Discussing also the average production on these machines on four-thread work . . . . . .

EDITOR COTTON:

I was very much interested in reading the opinions published in the February and March issues in answer to the question of your contributor who desired to know the figures of different mills with regard to production on Union Special seamers and also figures as to needle breakage on these machines.

It is my opinion that if the seaming is done correctly, three and a half dozen is the outside production per day on four-thread work; the average would be around three dozen.

The needle breakage on seamers as given in the letters you have published seems to me to be high. Our needle breakage runs about one needle for 100 dozen stockings. It is true that we have accomplished this reduction in needle breakage by steady hammering for the last 18 months and keeping the machines in good shape. This indeed is the most important thing. Much of a mill's high needle breakage is due to the operatives themselves. The only way to overcome this is to constantly check up on the operatives and constantly push them for better work. It is also highly important that the fixer on these machines know what he is doing and that he do all he can to keep the machines in good shape. In general, these are the two things to keep behind.

However, speaking specifically, we did find that it reduced our needle breakage to lap at the looper line in the toe only one course over instead of three or four as is done in some cases. I believe you will find that those mills which lap the toe at the looper line three or four courses break more needles at that point than at any other place. We have had no trouble at all with lapping only one course and it certainly has cut out needle breakage to a large extent.

We use two ends of 80/3 combed peeler mercerized Egyptian Sak and find that this operates very well indeed. We believe 50s/2 will do just as well, but 80s/3 is stronger. We believe that silk would tend to increase the needle breakage and certainly would wear the parts of the machine through which the thread passes. Also, it would have to be specially twisted to prevent kinking and it does not, according to our experience, wear as well as the cotton, although in some cases it does give a smaller seam.

As is evident, this is a rather indefinite subject and other than these specific points I do not recall any at this time. Much of our needle breakage reduction credit goes to the foreman in charge of the room who is very conscientious and keeps behind this matter *all the time.*

It seems to me that this field of looping, seaming and inspecting departments, as well as the mending has been somewhat neglected. There is an awful lot to be written and discussed with reference to needle breakage and parts consumption on loopers and seamers, as well as the percentage of defects made on these machines. I believe one would find the wide difference which occurs at these points astounding. For example, yesterday we were discussing with another manufacturer his looper menders and we found that he made around one-half of one per cent at his loopers whereas ours runs only two-tenths of one per cent. In fact, last week it went down to one-tenth of one per cent, which we consider almost perfect. I am convinced that much improvement can be made in these departments in most of the mills throughout the country.

CONTRIBUTOR NO. 6209.

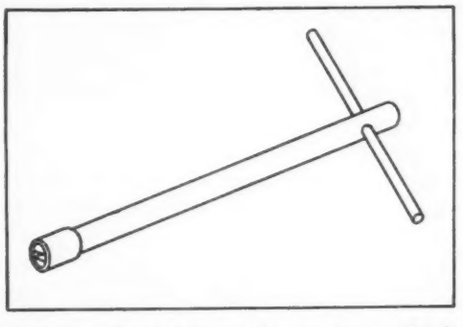
A Handy Rib Machine Tool.

EDITOR COTTON:

A very handy tool for Wildman stop motions is a coupling screw wrench shown in the accompanying illustration. This wrench was made to loosen and tighten the shaft coupling screw of these stop motions, known as part D-88 in the machine catalog.

Without a wrench of this kind it is difficult to get to these screws on the stop motions.

This wrench is made out of ¼-inch rod, 3¼-inch in



length. The end of this rod is cut to fit the head of the coupling screw. A bushing is then fit over the end of the shaft and soldered to the rod.

The handle is made by drilling a ⅛-inch hole a little below the top of the wrench, and a piece of ⅛-inch rod, 2 inches in length, is inserted.

CONTRIBUTOR NO. 6068.

A Discussion of the Parts of Scott & Williams Knitting Machines.

Plate XIII.

(This continues the series of short articles discussing the machine parts on Scott & Williams machines, by taking up in order the various plates in the manufacturer's catalog with which all men using this make of machine are familiar.

The first article, on page 126 of the October issue, covered Plate I, Plate II, and Plate III; and the second article, on page 86 of the November issue, covered Plate IV. The third article on page 97 of the December issue, took up the parts shown on Plate V. The fourth article, on page 94 of the January issue, covered Plates VI, VII and VIII. The fifth article, on page 101 of the February issue, covered Plate IX. The sixth article, on page 73 of the March issue, covered Plates X, XI and XII.

It is suggested that in reading these discussions, the reader turn to the plate in question in the catalog and refer to it while reading the comments found in these articles. Furthermore, it will be a good idea to clip these discussions and file them in the catalog along with the plates to which they refer.

The numbers in parentheses following the names of parts are the same numbers used by the manufacturers in referring to the parts in the catalog.—The Editor.)

EDITOR COTTON:

The Clutch Device.

Many types of knitting machines, loopers, ribbers and the like are equipped with a device of this kind. Usually these devices are called stop motions, and are operated mechanically on some machines and electrically on others. No doubt there are many readers who know this device from A to Z, but for the benefit of those who have not had an opportunity to become familiar with it it may be worth stating that it is a mechanical stop motion. Models K, H H and R I machines leave the factory equipped with this device (with minor changes for the respective models). It can be applied to other models and will be found very useful, a time saver and a money saver if used on any Scott & Williams machine producing (string work) ladies' hose, anklets, misses' hose and the like, especially on machines equipped with the Universal web take up attachment which was shown on Plate XI. (See March issue.)

Many machine fixers look upon this device as more work and more trouble when in reality it is quite the contrary. The writer has seen Model K machines in operation with the clutch device disconnected simply because someone failed to realize the true value and importance of this attachment. (Some remarks in connection with this practice will be made at the close of this discussion.)

Stop motions of any type and the clutch device shown on Plate XIII must be kept in good repair and be properly adjusted, otherwise they will be neither useful nor effective. On a Model K machine, for instance, there are quite a number of minor things which can give trouble, such as broken needle butts, broken dial jacks, needles getting loaded up while making the hem, etc.

The clutch device will act in either case named if properly adjusted and none of these ailments can be laid to poor machine building or design but rather to wear and tear, poor machine fixing, misuse and abuse. As machines became more complicated hazards became greater, and no doubt that is the very reason why this device was developed. It is constantly on guard and will prevent minor ailments and accidents from doing serious damage simply by cutting off the source of power and stopping the machine quickly when things go wrong.

The clutch device as a whole is not difficult to adjust so that it will be useful and effective, nor is it costly to keep it in good repair. The component parts are of simple design and sturdy construction in relation to their respective tasks.

The beginning of the clutch device can be traced to the welt presser (8342) or something similar and answering a like purpose. Necessity is the mother of many inventions, according to the old adage, but it appears that a broken needle butt was the father of a device similar to a welt presser which would strike an alarm bell and call the knitter's attention to a machine with a broken needle butt. The motion or leverage to operate the device was and still is supplied by the broken needle itself (or other disturbance). The idea was very good and it helped a lot as long as the operator was close at hand and not too many bells started ringing at one time.

The next step forward was to find a way to stop the machine in addition to ringing a bell, and this step was taken when the clutch device was developed. This will be discussed in detail later.

The Welt Presser.

Both welt pressers shown on the plate are very useful in a number of ways in addition to acting as a watchman and causing the clutch device to operate when the need arises. (These points will be brought out in a later discussion.) Both welt pressers operate exactly alike as far as the clutch device is concerned; (8257) was designed for Model K and K G machines and (8342) for plain models. The first step in connection with the development of the clutch device was to transmit the motion of the welt presser (caused by a broken needle butt or other disturbance) to the source of power, namely the pulleys, to which the bulk of the clutch device is attached. This is accomplished by the stop actuating rod (6944) of which one end is hooked into the welt presser and the other end passes through a hole in the stop actuating finger bracket (8320) which is fastened to the frame of the machine. The rod collar (6924) is held in position by the screw (15339) which is set in a vertical position just behind the actuating finger (8321) so that the jerking motion of the welt presser will move the actuating finger (8321) and cause it to release the lever (5505). The release of lever (5505) permits the spring (6945) to move the stop finger (8322) which is attached to lever (5505) outwardly toward the high speed pulley and into one of the four open spaces in the high speed pulley stop ring (5501). The stop ring then ceases to turn with the high speed pulley and this causes the device to act and throw off the power. The stop finger stud (6946) should move freely to assure prompt action when the lever (5505) is released. The clutch device is arranged so that it will act with the belt running on either high speed or intermediate pulley. The former will be considered first.

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Levers and dials and wheels control the production of millions of *Torringtons* . . . needles that do not vary because they are formed by mechanical hands.

TORRINGTON *SPRING BEARD* NEEDLES

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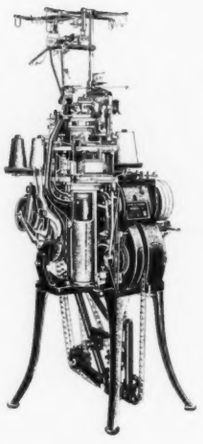

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THE PRODUCT . . .

A stocking by the Hanes Associated Mills—made, on the Model K machine, to sell to the critical consumer who insists on elastic welts, perfectly fitting heels, shaped-in-the-knitting toes. Of course, Torrington needles are vital to this "custom-tailored" merchandise.

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The High Speed Pulley.

The stop ring (5501) rests in a groove in the high speed pulley (5500) and is held in position by the buttons (8340). These should be kept tight allowing just enough clearance to permit free movement of the stop ring. The high speed pulley hub (5499) serves a three-ine-one purpose. First, it supplies a bearing surface for the high speed pulley (5500) to run on when in a power off position; secondly, it provides a means of disconnecting the power, this being accomplished by the high speed pulley stop lever (8335) being drawn out of one of the four notches in the hub flange; and thirdly, it provides a housing for the high speed driving pinion (6323). The high speed pulley brake lever (8334) and stud (6955) form a sort of a connecting link between the mechanism attached to the high speed and intermediate pulleys. The stud (6955) rests in the oval opening in the stop ring and supplies the means of lifting the lever (8335) by being forced out of this opening when the stop ring is held rigid. Occasionally the stud (6955) will work loose and come out of the brake lever, causing the completed device to become inactive. This can be overcome by tightening the stud securely and then using a ball peen hammer to flare the end just enough to keep it from working loose.

The Brake Ring.

The high speed pulley brake ring supplies the motion necessary to operate the mechanism which is attached to the intermediate pulley. This is done by the brake ring buttons (6960) which rest in a countersunk hole in the high speed pulley, causing the brake ring to move away from the pulley when the buttons are raised out of position. The buttons should be renewed when the points become blunt as this will cause motion loss and the brake ring will fail to operate satisfactorily. Brake rings are not troublesome under normal operating conditions, however, there is a possibility of one being bent through accident or abuse, but being made of cold rolled steel makes it a simple job to straighten one if this should happen.

The Intermediate Pulley.

This pulley is also equipped with a hub (5503) which serves several purposes. First, it acts as a bearing for both intermediate and idler pulleys. Second, it supplies the means of throwing off the power while the machine is being driven by the intermediate pulley (except while reciprocating) in case of broken needle butts or other disturbances. The action of the few parts attached to this pulley is very simple. The intermediate pulley catch (8338) rests in a slot in the pulley and is pivoted on the pin (6957) both of these parts being held in position by the spring (8339). The catch fits into one of the notches in the hub, thus making the pulley rigid to the hub. The heel of the catch (8338) projects through the pulley just far enough to keep it from touching the brake ring and is held in this position by the first step on the catch resting against the shoulder of the heel, when it is in the notch. When the device acts the high speed pulley brake ring presses against the heel of the catch (8338) forcing it out of the notch in the hub (5503) thus throwing the power off.

An occasional inspection of the various parts and a thorough lubrication at regular intervals will be a great help in keeping the clutch device in good shape.

In closing this discussion I would like to relate an incident pertaining to the clutch device. While on a visit to the old home town I dropped in to see an old crony of mine who is blessed with the job of keeping several hundred Model K machines turning out some mighty good ladies' hose. Arriving at the mill office I asked for my old buddy and was told to go to the knitting room, which I did, and found Bill (that's not his name) busy as a bee. We chewed the fat for a few minutes when Bill was wanted in the office, whereupon he told me to make myself at home, which I did.

While roaming around among the machines I suddenly heard an alarm bell ringing like nobody's business, and at the same time a boy rushed down the line (he was truly going places) and stopped the machine. The fixer was working on the machine by the time I got there, and he commented on the speed and alertness of his knitter, and right he was. I asked him how many rounds the cylinder had made before the boy got to it, and he said not more than ten or twelve. Well, it should not have made more than two or three rounds if the clutch device is working right.

"Oh," he said, "we don't use it. The boys get to the machines quickly enough and we don't have to fix those things when they get out of order. We keep our welt pressers set so that they are sure to ring the bell in case of trouble, and the boys watch their machines better, when they know that the clutch device is disconnected, they don't depend on it."

"Well," I answered, "your arguments have their good points, to be sure. By the way, do you have a car?"

"Yes, why?"

"How long do you run on a flat tire?"

"Oh, I stop right now."

"Why?"

"Well, the longer I run the worse the tube becomes cut up, especially if it happens to have a nail in it."

"Well, now, why shouldn't the same be true with your knitting machines? The more rounds it makes with a broken needle butt the more damage to your cylinder walls, needles adjoining the broken needle, sinkers, etc. Does that sound reasonable?"

"Yes, it does."

"Can you adjust a clutch device so that it will give results?"

"I never have much luck with them."

We proceeded to connect and re-adjust the device on the machine which he had just fixed and the fixer agreed that it was simple after we tested it carefully and found that it stopped the machine many rounds earlier than his high speed boy.

Bill, the boss, arrived on the scene: "Well, how do things look to you?"

"Fine, Bill, you have a well arranged knitting room,"—and as we left the fixer he smiled and said, "Thanks for the tip; I'll fix the rest now. Glad you dropped in."

Bill and I finished our chat and I left him. I don't think he knew about those clutch devices being disconnected, and it is possible that the fixer I talked to was the only one guilty, for I found out later that he was a new man. Bill is the kind who finds out such things in a short time, so it seemed best for me to let well enough alone and not mention the incident to him. After all there is real pleasure in being able to help a fellow and then forget it.

The next discussion will cover the parts shown on Plate XIV.

CONTRIBUTOR No. 6038.

The Importance of Experienced Supervision in Full-Fashioned Plants.

EDITOR COTTON:

With your permission I should like to discuss in a series of short letters for your "KNITTING KINKS" department, the question of management in full-fashioned hosiery mills, based upon practical mill experience. I hope to give you ideas and methods which are practical and which have been used to advantage in many hosiery mills, in the hope that these thoughts may assist in producing satisfactory results and improving the performance in other mills.

Let me first submit the question: Is a good, seasoned, practical knitter (used as an overseer) of vital importance to the knitting department of a hosiery mill; can the knitting room produce the proper quality of hosiery, keep the machines in first-class shape, by having in charge only a machine fixer not schooled in the art of knitting?

The management should realize that conditions have resulted in the fact that the average operator developed today is not of the same type workman as was developed 20 years ago, insofar as ability in the fine art of a knitting machine is concerned. The operator developed during the last five years does not have the opportunity to learn as did his predecessor. The modern machine builders have improved the knitting frames to the point where operators can be developed in a period of a few weeks. This has been made possible by the advent of appliances and the development of the machine itself, so that it has been made practically fool proof from an operating standpoint. The short needle has also made the problem of needle straightening considerably easier to deal with. Due to these changing factors, the status of the knitter has changed considerably, and much of the fine art of knitting is lost to him.

In the old days, the knitter served from two to four years in an apprenticeship. He was trained in all of the fundamentals of knitting and not to run sets off of the machine and replace broken needles and a few minor duties. Oftentimes he had to do most of his own machine fixing as in some mills there was only one fixer to every 75 or 100 machines. The average craftsman of the past, when starting to work on a particular machine, regarded it pretty much as he would his own personal property. He kept the needles in first-class condition (this is in itself an art considering the long needles used) and of his own accord he kept his machine clean and free from gum and rust because he realized that he would benefit from better performance. It was not unusual for the craftsman of the past to operate the same machine for a period of ten years or more. Each knitter had an apprentice boy to cut the threads and do minor duties and could devote the largest part of his own time to examining stockings, straightening needles, etc. Also, the standard of quality was not so high as in this day of keen competition, therefore strict supervision was not so vitally important as at the present. But how times and conditions change! Today the mill owner is harassed by short profits, uncertain market conditions hamper the selling of his products, selling prices and wage scales have dropped greatly. Production is pushed to the limit, machines run faster.

The Wrong Way to Save Money.

A manufacturer in trying to save his waning profits strikes at the overhead. But before doing so he should stop to think: is this a good plan? With the knitters' status changed, this puts more responsibility on oversight. Each machine represents an investment of several thousand dollars. Left without the necessary care, it will soon become a lot of equipment unfit to produce enough quality hosiery to warrant operating properly. Then if the mill is financially able it can have the equipment overhauled at a cost of much money and lost time. The management which today tries to operate a mill of even medium size with merely a machine fixer in charge is certainly going to pay the penalty at a later date. There are many such mills in the industry and unless they change their tactics their equipment is certainly on its way to the scrap pile.

It is vitally important that to get good performance a mill must have an expert knitter to look after its interests, and not merely a man with a technical knowledge of the machines. Supervision should be more critical than ever and the best supervision possible is the cheapest insurance that a mill can have. An expert knitter in the organization will certainly pay back to the company big dividends in the form of smooth performance and quality hosiery. He has been schooled in the art of knitting and understands the principles so necessary to smooth performance.

The knitting man would indeed feel sick if he had the opportunity of seeing conditions as they exist in many hosiery mills today. My advice to the heads of organizations that have cut their personnel to the danger point is to get a good knitting man before it is too late.

In the next letter I wish to discuss some of the sources of trouble resulting from poor supervision and how these conditions can be remedied. The next article will cover needle breakage.

CONTRIBUTOR No. 6123.

THE KNIT GOODS MARKETS . .

It did not take the hosiery primary interests long to separate the wheat from the chaff in the reports "silk supplies cut off," "dealers prepare for a famine in hosiery" and a fine variety of propaganda for stampeding manufacturers and buyers for the trade. A Philadelphia manufacturer permitted a peep at what purported to be a blanket order of March 7 for 30,000 dozens of women's silk full-fashioned at "your present prices, specifications by April 1." The name of the concern placing this jug-handle contract was not disclosed by the recipient, who of course returned it, and without comment. A few days later a salesman canvassing jobbing houses was on the verge of tears because, he said, he had orders for hosiery offered him, but could not locate mills with silk for filling the orders. Neither of several jobbers to whom the sad tale was narrated was so moved as to offer an order. One reported an order to a mill for "all you can make in a week, ship as fast as finished." Offerings of distress goods served to prick the bubble. No extraordinary demand for or interest in early shipments of hosiery was noted as a response to the war-time efforts at price boosting.

With the bank holiday a week old, there was a scarcity of silk for manufacturers who had been operating plants at a loss and so were not able to do any buying, as was explained by executives of concerns who were receiving shipments as regularly as though market tranquility had not been disarranged. It was said to be possible to obtain silk of the lower grades and lots which had been rejected by some manufacturers as allegedly not conforming to samples. Necessarily, while the silk exchange was closed, quotations were nominal and prices on which sales were consummated were adjusted to the judgment of buyer and seller as to values at the re-opening of the exchange. A like condition of course developed in the markets for silk stockings. During and immediately preceding the national and state moratoria for banks, production of hosiery probably was at the lowest stage in months, and with anything like normal demand from retail interests, the scarcity which did not exist, reports to the contrary notwithstanding, may be visualized as an aftermath of the "holiday" and incidents which may have been contributory to it.

Jobber Calls in Cotton Staples.

While some factors looked for continued idleness of many full-fashioned small mills, there was seen a possibility that the financially weak which may have conserved their low price raw silk holdings while the silk exchange was closed, might resume following the resumption of trading in the exchange. This, it was pointed out, would throw more low price hosiery on the market in April.

Jobbers were, in instances, calling in cotton hosiery on order while the cotton exchange was closed and yarn prices were an unknown quantity, and some, receiving case lots at stated intervals, increased their order to two cases or more, one leading wholesale distributor explaining: "If we have an increase in buying power, any of our staples will sell; the public does not have more money for goods, then cheap cotton stockings will be in greater demand." The same jobber stated he had not changed his attitude toward silk hosiery; that all that the house had on open order would be taken in as usual, regardless of developments in the raw silk market. It seemed a general opinion in the trade that some time might elapse after resumption of business by banks in a normal way before traders would be prepared to make large commitments for near future.

It appeared to some of the more important hosiery manufacturers that the large department stores comprising a group that trades in the better goods for a conservative clientele which makes price secondary to quality standards, might buy very close to requirements. Buyers had received instructions to "buy nothing that you do not need to keep your stock properly balanced." Merchandise managers and those to whom they were subordinate were definitely against any other policy, at the very time that alert buyers were bent on going ahead with a view to a near normal Easter business developing.

Up to within four weeks of Easter, most of the hosiery for the Easter period sales had not been shipped. Manufacturers of nationally known branded lines were at work on orders for that period. Several in the larger class in this group had closed their plants pending developments following the resumption of business by the banks. By the middle of March there was heard little doubt among manufacturers that the "1933 Easter business would show a considerable deficit. Yet some mills were well supplied with orders for spring and operating plants full eight hours a day. Mills with a direct jobber backing were among the busier in Philadelphia at the time. The extent to which output had been curtailed, voluntarily and due to circumstances beyond the control of manufacturers, was beginning to tell in an increasing volume of sales for mills which, as in the case of banks, "could do business as usual" while some were barred—theoretically padlocked.

As the looked-for January-February demand failed to materialize in as broad an extent as might have been expected, it is the consensus production of full-fashioned hosiery has not been increased to the end of the first quarter of this year, and 1933 therefore is to be assumed to be in a better position as to stocks in mills than at the end of 1932, when according to the reports of identical manufacturers to the Department of Commerce, although around 800,000 more dozens of hosiery were manufactured in December than in the corresponding month of 1931, stocks in mills were more than over 500,000 dozens less. There were increases in only two of the

MODERN INDUSTRY DEMANDS COOPER HEWITT LIGHTING

Doing on 1½ floors the work which before called for six—one move that cut Phoenix Hosiery Company's overhead $100,000 a year. Here Cooper Hewitt light shows up clearly every smallest detail of the seamless knitting operation.

This investment in COOPER HEWITT LIGHT helped to save a million dollars

With organization and machinery built up for the boom years, The Phoenix Hosiery Company lost more than a million dollars in the depression year, 1931—and faced the probability of a long period of losses . . . How to stop it? . . . The directors decided to spend at once more than a quarter of a million dollars on improvements—and in 1932 saved more than $1,200,000 on manufacturing and distributing expense.

Most important of the steps taken were consolidation of plants and concentration of production areas . . . And it is here notable that these steps were largely made possible—and the greatest all-round efficiency achieved—by the addition of over 150 Cooper Hewitt mercury-vapor lamps to the long existing installation of over 600 lamps. Lighting, with each change, got special attention—and Cooper Hewitts assured both quality of light and the right number of foot candles at every work level.

Because Cooper Hewitt light, for industrial purposes, is *better* than daylight, it does away with all need for window illumination. It gives you every square foot of middle-floor areas for use at all hours. It enables you to centralize your best equipment in one building, if necessary, and abandon unprofitable buildings. It makes it possible to adopt a six hour day and give employment to two or three shifts—with the same equipment and a correspondingly lower overhead and maintenance cost. General Electric Vapor Lamp Company, 853 Adams St., Hoboken, New Jersey.

GENERAL ELECTRIC VAPOR LAMP COMPANY

552 Copr. 1933, General Electric Vapor Lamp Co.

seven groups—women's seamless and boys', misses' and children's. With this showing as to lighter stocks and virtual assurance of decreased output in the first quarter of 1933 the outlook for spring and summer has not been clouded by the curb on banking facilities for part of the time.

Compare 1932 Stocks With 1929.

It is a question among manufacturers whether the reports of mills to the Department of Commerce are as informing to the trade at large as in previous years. Reports for December 1932 and 1931 were from identical establishments representing 325 mills, whereas the reports for like months of 1929 and 1928 were from identical establishments representing 363 mills, which for December 1929 reported production, all classes, 4,272,582 dozens, comparing with 4,604,904 dozens by 325 mills in December 1932—332,402 dozens more last December by 38 fewer mills. At the commencement of 1930 there were, according to the mill reports, 10,091,813 dozens in stock among manufacturers, comparing with 7,934,832 dozens on the 1st of January 1933. This would indicate that in three years of "hard times," reporting manufacturers have reduced stocks by more than 2,000,000 dozens, eliminating in part one source of much of the industry's trouble.

Recent reports of manufacturers show a 25 per cent falling off in output of women's seamless silk hosiery and only a very slight drop in women's silk full-fashioned, comparing with a year ago, while in women's rayon numbers there is indicated an increase of about 10 per cent in seamless and a drop of approximately 40 per cent in full-fashioned. A recent addition to full-fashioned rayon is the number made by the Rosedale mills and distributed by Chipman's for $3 a dozen, which is seen as likely to make a strong bid for place in the 44 cent bracket—a strong possibility for the 39 cent bracket, it is suggested.

A trade rumor persisting for a few weeks since the commencement of the year links the Hanes (Winston-Salem) Associated Mills in a merger embracing the Rosedale Knitting mills, at Reading, probably the fourth largest American full-fashioned establishment. Careful inquiry failed to obtain confirmation or denial of the report. A previous report, that Charles Chipman's Sons Co., had bought the Rosedale was denied. In the confusion of rumors it was suggested that a merger of the Hanes and Chipman interests, with control of a mill as large as the Rosedale, would represent perhaps the strongest of American selling organizations and little less powerful from the standpoint of manufacturing facilities —full-fashioned and seamless.

Oscar Nebel appears as back in his old post of president and general manager of the Oscar Nebel Co., Inc., full-fashioned hosiery, in Hatboro, Pa., a few miles out from Philadelphia. After a long factional fight in the company, directors friendly to Mr. Nebel were elected recently and subsequently re-instated him as chief executive. For several years he was shorn of his former executive and managerial powers, and refused to pose as a figure head in the capacity of vice president. Restored to full authority, Mr. Nebel, who is regarded one of the more resourceful mill men in the mechanics of hosiery, is reported quietly getting his bearings, while preparing to announce a policy by which he expects to vest the company and plant with the prestige of their palmiest days, when Nebel hosiery usually was viewed as something distinctive. He always has aimed at outstanding characteristics, holding to the theory that hosiery is worth what it will fetch and that it can be produced and sold profitably to manufacturer and distributor.

Twelve Mills Out of Group of 71 Reported Having Had Profits in 1932

A new order of things which took shape with the proclamation of President Roosevelt as one of the first official acts proclaiming bank moratoria was believed by some leaders in the full-fashioned hosiery industry to foreshadow a gradual return to producing manufactured goods for profit. It was a theory that the Administration's move for safer banking conditions contemplated "safety appliances" for various industries, as with industry losing money, as in the case of hosiery for several years, pulling all or most of the banks from the slough of depression would be a slow process and have a tendency to prolong the economic agony.

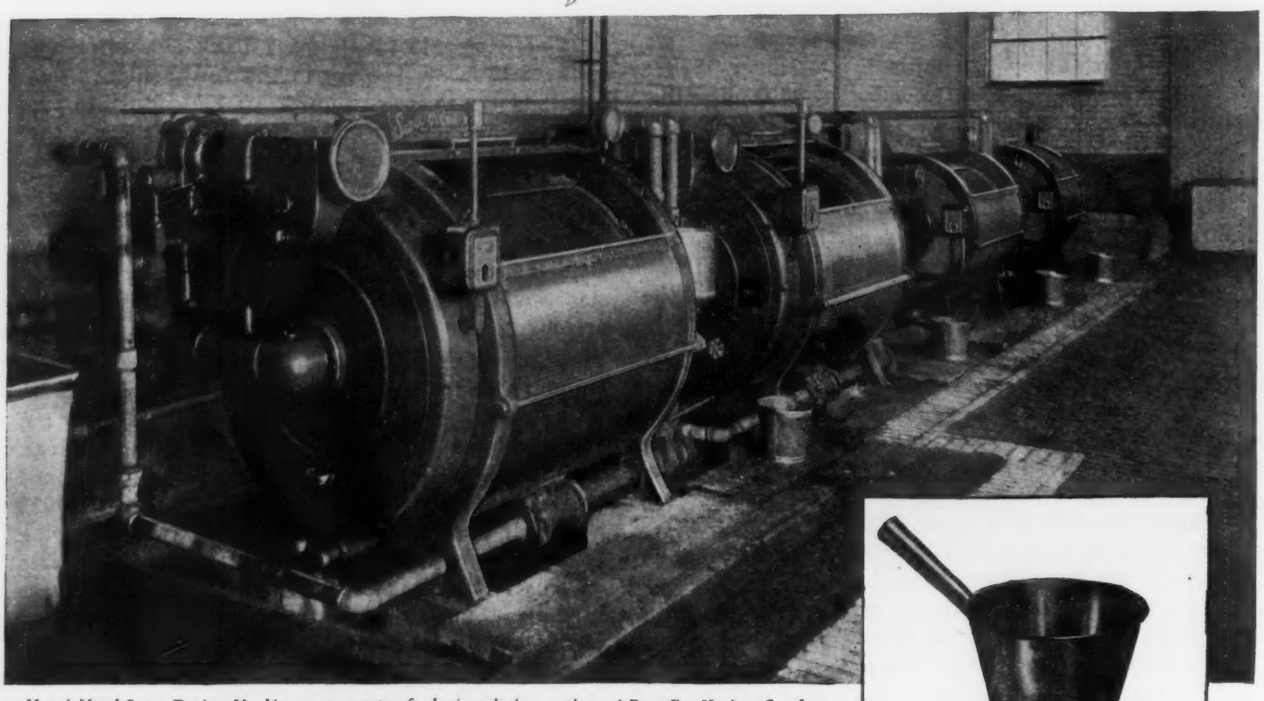
That banking administration will be on a different plane, so far as extending aid to industrial plants whose managements persist in cutting until they not only eliminate profits but produce at an actual loss, seems to be generally accepted. Of 71 full-fashioned hosiery mills in and near Philadelphia which in 1932 had their accounts audited and fiscal book-keeping done by the same group of accountants, 59 are said on trustworthy authority to have finished the year in the red and 12 showed slight net returns. Some of the losers are expected to pass out before the year shows age; some are mending and others will mend their ways. As some mills have made money while competing with an army of losers, there's a conviction that the full-fashioned industry is headed toward saner and safer conditions and may be in for a long pull to that end.

New Remedy for Old Ailment.

Joseph A. Harron, vice president and general manager of the Harron Hosiery Co. in Philadelphia is nursing the notion that before the industry can be made really profitable it will be necessary to put an end to racketeering in irregulars and seconds, in order that a manufacturer's sub-standards cannot be sold in competition with his first quality goods, to the material disadvantage of dealers marketing the latter. He believes that seconds properly protected by a distinguishing mark are a logical item for basement departments of department stores and would not compete seriously with properly protected first quality goods. But application of his proposed remedy to a chronic ailment of long standing is put up to the retailers, who are said by manufacturers to have done more to pull down the price structure than have the manufacturers.

SMOOTH...

as the silk *they protect!*



● *Monel Metal Super Dyeing Machines, rotary type, for hosiery dyeing at plant of Busy Bee Hosiery Co., Inc., Reading, Pa. Made by The American Laundry Machinery Co., Cincinnati, Ohio.*

● *"Nesco" Seamless Monel Metal dipper with Monel Metal handle and rivets. Two quart capacity. Manufactured by The National Enameling & Stamping Company, Chicago.*

These hosiery machines prevent chafing and reduce re-dyes!

The phrase "smooth as silk" certainly fits these hosiery dyeing machines to a "T". Their inside surfaces are like glass ...so smooth that the sheerest stocking fabrics are perfectly safe from chafing and roughing. And if you want to know what a big advantage that is, read this statement from Mr. C. H. Beihl, Secretary of The Busy Bee Hosiery Co.—

"Monel Metal rotary dyeing machines certainly have enabled us not only to cut costs, but also to give our customers much greater value. And in addition, we are able to better control our colors with a minimum of re-dyes."

The properties that account for this kind of performance are Monel Metal's close-grained texture, solid structure and high corrosion-resistance. Moreover, Monel Metal's silvery surface is so easy to clean that the range of colors that can be quickly dyed in one machine has been greatly increased.

Consult your fabricator, or write for further information about Monel Metal dye-house equipment, including "Nesco" Seamless Monel Metal Utensils.

● *Rust-immunity, corrosion-resistance and solid, chip-proof structure protect Monel Metal utensils, such as pails, against rapid depreciation that coated utensils are subject to.*

●

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Mr. Harron would have retailers attach to or made a part of every order the following form of guarantee by the manufacturer accepting it: "This merchandise is guaranteed by you as first quality. Any merchandise other than first quality sold to us or to any other resource must be stamped on the toe of each stocking in indelible ink either 'Irregulars' or 'Seconds'. Otherwise this order is null and void." (signed by the dealer placing the order).

Assuming all of the large retailers were to exact confirmation of orders constituting a guarantee of first quality, it would be a very simple matter, it is pointed out, to obtain "adjustments" of complaints as to quality, for, it is pointed out, that is something about which there might arise a difference of opinion between the seller and the buyer—the first quality of one manufacturer might not compare with that of another, producing identical goods.

Any plan by which dealers and the consuming public might be able to intelligently differentiate standard and sub-standard goods would go far toward removing one of the troubles with which manufacturers of the legitimate have to contend. They suffer more from sales of seconds to dealers in imperfect stockings and stores' rejects, than from hosiery that is made to sell for the prices of the inferior. In any event, judging from the part played by dealers in lowering prices in recent years, they will be slow to adopt the Harron suggestion for protection against hosiery seconds racketeers.

Two chain store organizations in recent letters to mills went further in aiming at "product liability insurance, which would apply to all future purchases," than does Mr. Harron. One wants a letter from manufacturers holding them, the stores, "harmless in regard to any claims which may be made against them involving the merchandise or its sale." The other chain store organization's letter to mills calls for "indemnity against almost any conceivable claim amounting, in brief to accident insurance, and insurance against so many contingencies that, to feel safe in considering an order, a manufacturer would require a staff of attorneys skilled in domestic and international procedure, and re-insurance at that." Evidently somebody has started the "pure hosiery" ball to rolling toward perhaps eventual presidential proclamations declaring a moratorium for canned theory, etc. Meanwhile something real in the competitive promotion of hosiery production and selling will be happening.

Hope for Good Seamless Hosiery With Wanton Cheapening of Fashioned

A large retail store in Brooklyn several weeks ago ran a special sale of women's seamless silk hosiery priced for the occasion 29 cents. An observer of consumer response to the unusual offering subsequently commented that he believed "proper promotion of seamless hosiery of high standard quality at current prices would appeal more strongly than offerings of full-fashioned stockings made to sell for 39 cents." His conclusion was that since full-fashioned has been so radically cheapened for price, the term "full-fashioned" has lost its charm for many persons who may feel constrained to put length of service above flat knitting construction, since the back seam is no longer a badge of distinctiveness.

In a discussion of an opinion favorable to seamless made hosiery as a competitor on even price ground, it was declared by a manufacturer who had but recently returned from a tour of southern manufacturing centers that the modern seamless plants there were busier, relatively, than the full-fashioned. This was viewed as but logical, considering that in the past ten years the full-fashioned industry has had a remarkable spread, even though expansion virtually ceased two or three years ago, while in the circular knit field there has been long continued recession in productivity—seamless gradually giving way to full-fashioned. In the meantime, builders of circular machines have materially broadened their scope of performance, in that the down-to-the minute model knit clocks, fancy tops, gusset toes, etc., and, it is maintained, provides for more expansive hems and tighter ankles. But there lingers and may linger, a lure in full-fashioned construction that counts for more than mere price and as purchasing power is restored, will present no less appeal than in its palmiest and more profitable days. And the more will this view obtain if buyers raid the prices of seamless in proportion as they have assailed prices for full-fashioned.

A chain store quite recently objected to a price of $1.90 a dozen for 320-needle four-thread silk hosiery, stating that was a quotation given by a manufacturer. The buyer was politely and gently informed that manufacturers who were conceded to have as low overhead as their rivals and as competent to figure cost were declining to do business with buyers who professed to regard $1.90 an adequate price and, besides, were keeping plants running on orders at a dime or more per dozen. Besides, the point was made, representative mills were selling their 340-needle four thread silk for $2.40 a dozen, and they doubted there could be a difference of 50 cents a dozen in the cost of the two types—320 and 340 needles.

Whether the buyer really had a quotation of $1.90 on a comparable stocking was not, of course, established in his negotiations with the mill whose price he tried to break. In any event, the manufacturer did not budge from his position and may not have gotten the order.

The silk hosiery market as of this year to late in March offered little opportunity for full-fashioned skimped and otherwise cheapened for prices arbitrarily set by an element among buyers. And there was even less chance of getting profits out of skimped and otherwise cheapened seamless, while the latter of honest to goodness construction was in fair demand. There was being offered so much distress full-fashioned hosiery of right good quality that poorly made coarse gauge had to be let go at probably the lowest prices since the beginning of the "depression" in hosiery.

A well known women's specialty shop organization doing business in New York and Philadelphia

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ran a sale of three-thread 48-gauge all-over silk, some with fancy tops and others with clocks, all at 50 cents a pair, for but one day. It is related that the sales exceeded in units those of any one day in two years, not even excepting December 1932 and 31, when the Christmas buying was on.

A special sale of perhaps significance in relation to distress goods was of 51-gauge for 55 cents, two pairs for one dollar. These were a part of a lot of odds and ends. A "sale" of advertised "seconds" of 45-gauge was going on at a time when it was common knowledge in the trade that there was a good market for such goods at $3 a dozen, although the first-grade 48-gauge three-thread referred to which were passed over the counter for 50 cents were available at $4 to $4.25 a dozen. A direct-to-retailer mill has been able recently to sell its four thread 42-gauge irregulars for $3.25 a dozen, an advance of 25 cents for this mill. The former price had been in force for some time while the mill was meeting sharp competition from the 39-gauge group.

Speaking of low prices, a mill line of children's anklets has been selling to jobbers through a New York agency for 42 cents a dozen—1¾ cents per anklet. While the 42-cent price per dozen makes the anklets a possible five cents a pair item in chain stores, it is pointed out, it will move over the counter in single unit stores for 10 cents a pair.

There has been quite considerable activity—in a way—in children's hose. Large department stores in many instances, "plunge" on lots of 200 dozens. But their orders are liable to come thick and fast. In a typical case, four orders received by one house within fifteen days aggregated 500 dozens. An order for 100 dozens will read: "If you can ship inside of a week, you may increase this order to 200 dozens." This is the character of business that imparts to the market for children's stockings an air of activity. Much of the buying is for delivery in ten days.

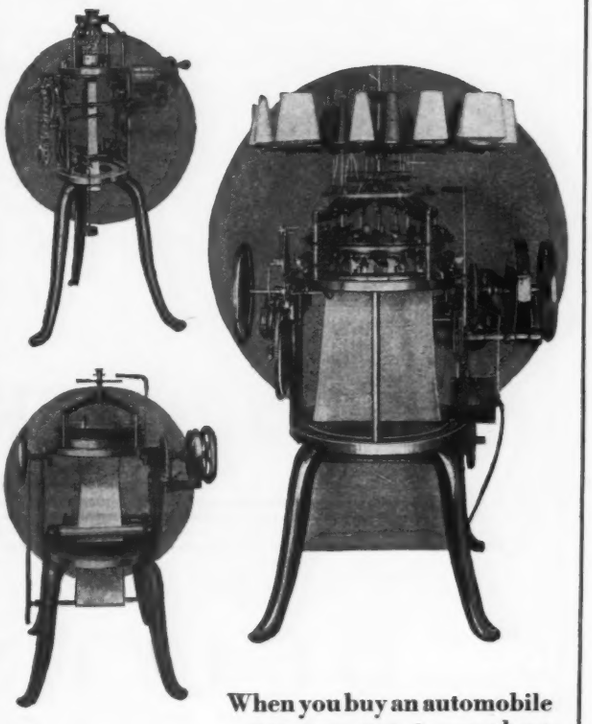
Mills in the Trade News.

The Interstate Hosiery Mills, Inc., full-fashioned mills in Lansdale, Pa., and Bloomfield, N. J., has been attracting much attention for months by its reports of monthly increases in sales and profits, making comparison with corresponding months of the previous year. The company's report for 1932 showed cash assets $511,571.45 and total current assets of $1,100,390.80, surplus December 31, $154,108 after paying dividends amounting to $64,020.35 and charging off $85,088.59 for abandonment of machinery. It is understood in the trade that the company has been a heavy buyer of hosiery in the gray, made to its specifications, keeping several hundred full-fashioned machines in operation.

The Interstate company's reported loss of $85,000 on abandonment of machinery is regarded as meaning that while buying in the gray it has scrapped a number of machines in one or the other of its plants.

The Lincoln Hosiery Corporation, Philadelphia, recently announced through President Samuel A. Kahman, president and manager, the scrapping of 42 full-fashioned machines of the coarser gauge

MODERNIZE *your* PLANT *with* BRINTONS



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And that difference is not in the cost of the needles themselves but in the value of their work — the quality (and quantity) of the fabric they produce. Good business demands the best needles.

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Strength, dull lustre, appealing appearance are features that have brought the great wave of popularity in favor of the new and outstanding Quitex Spun Rayon.

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Thomas F. Glennon, Agent

QUISSETT MEANS QUALITY

which were acquired in the purchase several years ago of the plant of the Brentmore Knitting Mills. Mr. Kahman some time ago, after buying the Brentmore plant and merging it with the original mill, made the boast that his company could rightfully boast of the lowest overhead cost of any full-fashioned mill in Philadelphia.

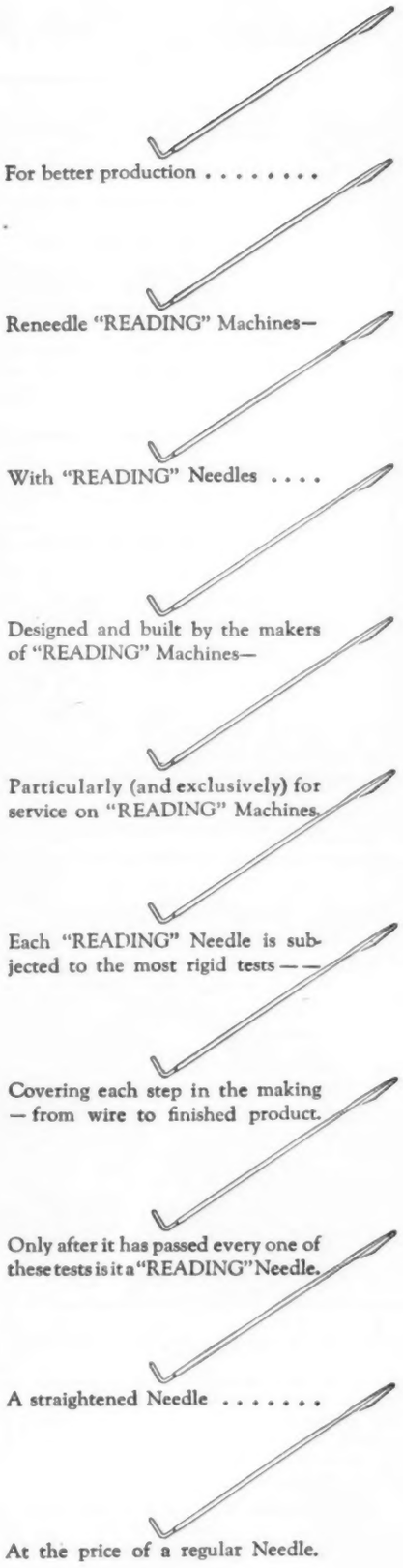
Flurry in Men's Winter Underwear— Talk of Increasing Union Suit Demand

A short-lived flurry in men's heavy weight cotton underwear followed soon after the opening for fall and winter, and for a time after the excitement abated, buyers of large quantities manifested feverish interest in a question of prices being revised to more nearly a parity with cotton with the reopening of the cotton exchange. Reports were circulated in large primary market centers that chain stores, catalog houses and some of the larger jobbers had requested manufacturers to provide coverage for their fall requirements. As the report, unconfirmed, went the rounds of trading centers, manufacturers were represented as doubtful of the expediency of accepting blanket orders. The effect of all of this "rumoring" was to intensify interest in 10 to 16-pound suits among smaller distributors.

The excitement subsided without revelations of any business of moment being placed while it lasted, and it was stated there was no immediate reaction to the re-opening of a large number of banks on March 13. This left the situation as to heavy weight underwear for the winter of 1933-4 about where it was before the opening, intervening circumstances having clouded the market in respect to opening quotations. There seemed no doubt in the minds of sellers that, contracting having been delayed by circumstances, detailed initial orders would be filed, in good volume, so soon as a price basis might be established.

There was of course some elation among manufacturers on the day (March 16) when trading was resumed on the cotton exchanges and March futures scored a substantial advance over March 3, when trading was suspended. This was accepted as making previous orders "stick." There was raised a question whether mills might not mark their prices up, on higher cotton by around three dollars a bale. Some buyers who said advances were due, doubted they would be made at once, for, it was suggested, neither jobbers nor retailers had moved much of their light weight goods and therefore might be slow with contracts for heavies, even at the current figures.

Talk of low stocks, empty bins, bare shelves, etc., ceased years ago to be effective seller propaganda, but this is one occasion when, it has been proved to the satisfaction of a group of manufacturers, bins really are empty, as to winter underwear, while the talk to that effect is not. Several interested mill representatives who are permitted to conduct quiet surveys are known to be in possession of first hand information, confirmed by a coterie of jobbers, that the carry-over from last winter was so light as to be not a factor in the commitments to be reasonably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With "READING" Needles . . . .
Designed and built by the makers of "READING" Machines—
Particularly (and exclusively) for service on "READING" Machines.
Each "READING" Needle is subjected to the most rigid tests — —
Covering each step in the making — from wire to finished product.
Only after it has passed every one of these tests is it a "READING" Needle.
A straightened Needle . . . . . .
At the price of a regular Needle.

Write for samples.

TEXTILE MACHINE WORKS

READING, PENNA.

Be Sure of Results

~by using these 3 "Brosco" SILK FINISHES

"Brosco" DULL FINISH — FINISHING COMPOUND S.P. — "Brosco" SCROOP OIL

These finishes when used in the proper combination and proportion will give you "any desired degree" of *Low Lustre; Water and Spot Proofing, Softness or Elasticity,*—and only "ONE" bath is required.

Visit Booths 128-29

KNITTING ARTS EXHIBITION, PHILADELPHIA—where we will show a complete line of Fabrics processed with "Brosco" Products.

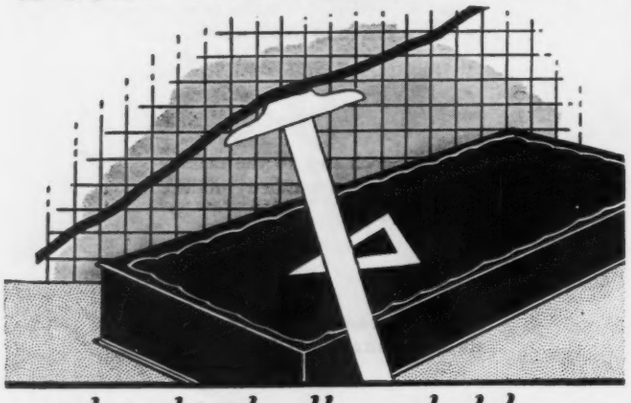
We'll be glad to send further details,—or have one of our practical men call upon you.

"Brosco Products"

SCHOLLER BROS. INC.

MFGRS. of TEXTILE SOAPS, SOFTENERS, SULPHONATED OILS & SPECIALTIES
AMBER and WESTMORELAND STS., PHILADELPHIA, PA.
and in ST. CATHARINES, ONTARIO, CANADA

Boost Your Sales Curve



with individually styled boxes

Higher sales curves follow when proper care is taken in styling boxes for textile products. Paper boxes by Old Dominion are scientifically designed to your individual needs by experts who know merchandising as well as box making. Write nearest plant for samples, prices.

OLD DOMINION BOX COMPANY, INC.
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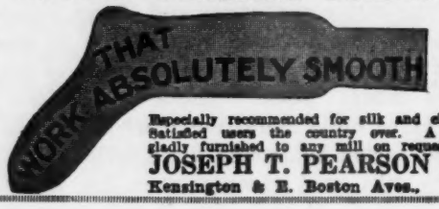
quality OLD DOMINION **Paper Boxes**

PEARSON
HARD MAPLE
HOSIERY FINISHING BOARDS



The famous bone-dry, unshrinkable, well finished boards that give universal satisfaction.

Especially recommended for silk and chiffon hosiery. Satisfied users the country over. A list of these users gladly furnished to any mill on request.

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Kensington & E. Boston Aves., Philadelphia, Pa.

No More Secrets

The Audit Bureau of Circulations was formed by large advertisers and publishers to put a ban on circulation secrets. Publications willing to have their records checked by impartial auditors belong to the Bureau,, and the number of papers they sell is published to the world. No one doubts the "A. B. C." report. It eliminates unknown quantities.

COTTON

ATLANTA, GEORGIA

expected for the coming heavy season. Whether distributors will contract accordingly, may be dictated by economic developments instead of the logic of anticipation.

Following the underwear style cycle, the union suit for winter wear appears to be moving toward its former place as a single piece garment, according to the testimony of spokesmen for the better mills, probably 12 to 20 being embraced in this classification. This view is supported by figures from the reporfts of 130 identical mills for December 1932 and the corresponding months of 1931. A Department of Commerce tabulation of the reports accounts for an increase of 23 per cent in the production of union suits in December last year. There was a decline of 26 per cent in output of shirts and 23 per cent in drawers.

Bathing Suit Mills Get Busy As Production Season Wanes

With less than two months remaining in which to get off a four-months normal production, manufacturers of bathing suits were able to see their way clear to a speeding up of plants long partly idle. But it was not until after the end of the "holiday" for numbers of banks that manufacturers took courage and began pushing work on orders which they had held up while there was entertained doubt as to the extent to which jobbers might file cancellations in the event the financial skies remained clouded a few weeks longer.

A manufacturer with quantities of swim suits in cases ready to be shipped who preferred knowing the worst, to trying his patience further, wrote a half dozen or more jobbers with goods on order and awaiting shipment, asking that if they intended to cancel any part of an order, they do so at once; that he would rather have the goods in the mill, for taking care of late orders, than risk the loss of late business by not being prepared for rush deliveries. As none of the customers indicated an intention to relinquish their rights in the goods which had been made to their specifications, the manufacturer went ahead with new business, which had been held in abeyance pending banking developments.

By the middle of March, for the first time in many months, bathing suit mills were in operation full speed and some were receiving more orders than it was thought possible to ship out before June 1. Most of the mills had cut production to bare needs. One in particular inaugurated a day and night schedule in February, which has been steadily maintained, risking accumulation of stock goods, and is reported having a ready outlet for output, but at prices which are lower than justified by worsted yarn cost. The manufacturer in this case made a price cut early in the production season, and with several which also "came down," is understood to have accumulated a rare volume of business before putting operatives to work day and night. The production season now is so far spent that further price reductions are not thought of. Some mills expect to be able to exact permiums for rush deliveries against orders received after April.

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and you will find *invaluable* Laurel's long experience . . . over twenty years . . . in solving individual textile treating problems. Our laboratory is maintained for this service.

You will also find Laurel Treating Agents pure, uniform, dependable; that they preserve. . . . unimpaired . . . every desirable quality of the most delicate fiber.

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Silk Oils	Penetrating Oils
Rayon Oils	Hosiery Finishes
Dyeing Oils	Softeners
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Sycamore, Ala. — Sylacauga, Ala.

OFFER THE ADVANTAGES OF LARGE FACILITIES — QUICK SERVICE

THEY CAN READILY SUPPLY ANY TWIST, PLY, OR PUT-UP IN CARDED OR DOUBLE CARDED YARNS FOR KNITTING, WEAVING OR INSULATING IN ALL NUMBERS FROM 3's TO 40's.

Selling Agents:
WATERMAN, CURRIER & CO.
INCORPORATED
BOSTON CHARLOTTE NEW YORK
PHILADELPHIA READING

REVIEW OF THE YARN MARKET

Philadelphia, Pa., March 17th, 1933.

COTTON yarns were quoted two to three cents higher when traders got their bearings after the re-opening of the cotton exchanges on March 16, the advance being from 11½-12 cents to 12½-13½ for 10s single carded on cones. In other words, following a day of trading on the New York exchange, yarn dealers here who had been quoting 11½-12 cents for some days prior to the closing of the exchange on March 3, were asking 13 cents or thereabout. When the day's gain for cotton was registered by the ticker, an order for 100,000 pounds of 20s carded was offered a leading house at 12½, basis of 10s. A southern spinner to whom it was referred by the local establishment named 13½ as minimum. In the meantime a local representative of one of the more important producers was quoting 14 cents.

Some marked their prices for combed peeler higher on a basis of 23½ cents for singles 24s and added 2½ cents to February prices for combed two-ply. Resumption of trading on the cotton exchange appeared to leave prices a matter of much uncertainty in the minds of leading local traders. Whereas before the closing, prices were regarded steady at 11½-12 cents for 10s carded single on cones. As there had been no little inquiry for prices while the exchange and banks were having a holiday, it was assumed that with the opening of the exchanges for business there would be evidence of considerable deferred demand. This seemed hardly likely to assert itself for some days, as the remedy for the banking and commodities market ailments was so drastic that some time for complete recovery will doubtless be necessary.

It appeared that the market opened today more favorably on knitting yarns than in the weaving group. This seemed apparent from the fact traders making comparison of ratings before the closing and after the opening of the exchanges were inclined to use knitting numbers while seemingly forgetful of the stagnation in weaving yarns in February, and there is no pronounced evidence that yarn consumption has been much increased in tapestries, upholstery, carpets and other industries in which consumption is greatest in the weaving group.

Among interesting situations developing during the exchange holiday was an offering of 60s 2-ply mercerized at an advance of two cents a pound over a mercerizer's previous quotation of around 48 cents, with the understanding that if cotton could be bought after reopening of the exchange on the basis of around March 1, the buyer would be rebated in amount equal to the difference in cost of cotton.

A leading mercerizer was at the time quoting 60s 2-ply 52 cents, which, it was figured, was approximately the cost of staple suitable for that count and of high breaking strength. Higher prices for the better types of mercerized yarn are looked for. For the present, demand for mercerized is, generally speaking, light, after deliveries of fair weights two to three weeks ago, at lower than current prices.

As trading in yarns was resumed this week at unsteady prices, it was thought buyers contemplating the placing of contracts would be disposed to wait for the effect of legislation—and currency inflation—on values, some interests professing to believe that nothing short of inflation will put prices on a profitable level. Thus, it is to be assumed, trading may be on a hand-to-mouth basis for some time.

With spinners being required to pay cash for cotton in original hands, a local operator in yarns on a large scale suggests the query, "why cannot spinners exact cash for yarns? To do so would dispose of the cancellation evil," he suggests, "and put the business on a safe plane, virtually eliminating price cutting."

Philadelphia prices published March 16th follow:

Single Skeins

4s to 8s	12½	10s	13
12s	13½	14s	14
16s	14½	20s	15
24s	16½	26s	17½
30s	18½		

Single Warps

10s	13½	12s	14
14s	14½	16s	15
20s	15½ @16	26s	18
30s	19		

2-Ply Skeins

8s	13	10s	13½
12s	14	14s	14½
16s	15	20s	15½ @16
24s	17	26s	18
30s	19	40s	24

Two-Ply Warps

10s	14½	12s	15
14s	15½	16s	16
20s	16 @16½	24s	17
26s	18	30s	19
40s	24		

Frame Spun Carded Cones

8s	13½	10s	14
12s	14½	14s	15
16s	15½	18s	16
20s	16	22s	16½
24s	17½	26s	18½
30s	19½	40s	24½
30s double carded			21½
30s tying-in			18½

Carpet Yarns

8s and 9s white warp twist	14
8s tinged tubes	13½
8s part waste	12½

Two-Ply Combed Peeler Skeins and Warps

8s to 16s	21	20s	22
24s	23	30s	26
40s	31	50s	36
60s	39	70s	49
80s	59		

Single Combed Peeler Yarns on Cones

10s	20	14s	21
16s	21½	18s	22
20s	22½	24s	23½ @24½
30s	26½ @27	36s	29½ @30
38s	31 @32	40s	33 @34
50s	37 @38	60s	40 @40½
70s	50 @52	80s	60 @62

Mule Spun Carded Yarn on Cones

10s	19½	12s	20
14s	20½	16s	21
18s	21½	20s	22
24s	23	28s	24
30s	25	40s	30½

Mule Spun Combed Peeler Yarn on Cones

10s	26	12s	26½
14s	27	16s	27½
18s	28	20s	28½
22s	29½	26s	30½
28s	31½	30s	32½
36s	35	38s	36½
40s	37½		

Tinged Insulating Yarns

8s-1	12	8s-2	12½
10s-1	13	10s-2	13
12s-1	13½	12s-2	13½
		20s-2	15½

YOU CAN MAKE YOUR SALES · During knitting

Temporary price foolishness to one side, your sales, particularly your repeat sales, must come as a result of the style, comfort and service in your merchandise. These are knit into your numbers—they can never be added afterward.

We put style for your numbers into Dixie durene by mercerizing under controlled tension. This gives Dixie durene a full lustre that is permanent in your merchandise.

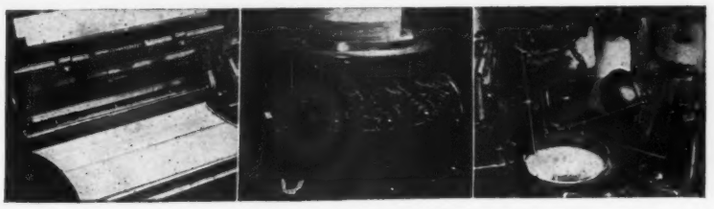
We put comfort for your numbers into Dixie durene by keeping excessive tension off individual strands of yarn, thus preserving its elasticity. We add more comfort for your numbers by a special air-drying process that makes Dixie durene soft and lofty.

We put service for your numbers into Dixie durene by using only long staples, carefully spun and twisted, then mercerized for even longer wear.

Style, comfort and service, the sales-makers, are in Dixie durene.

When you run your knitting machines on Dixie durene, you put these sales-makers into your merchandise.

Dixie durene proves its quality not only by the sales features it adds to your numbers, but also by its efficient performance on all types of full fashion and seamless hosiery machines, underwear machines, and garment knitting machines.



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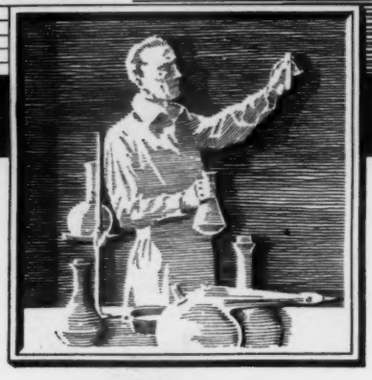
85% and 90% Commercial



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Used on wide variety of dyes and fabrics.

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MILLS having trouble in decolorizing rayon, cotton piece goods and hosiery, are finding an easy way out with our Stripper T. S.
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This critical step in your processing governs the final appearance of your goods. It is of major importance that colors shall not be dulled and that whites shall not be discolored.

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dissolves completely in water to a clear solution which obviously cannot alter the most delicate shade or discolor the purest whites. It may even be left in the goods without affecting their shade. DEGOMMA 20F is easily the best agent for use in refinishing.

Degomma 20F is a clean, white powder which dissolves to a clear, stainless solution. It will not spoil or lose strength and cannot hurt the fibre.

FOR ALL DESIZING PURPOSES—USE DEGOMMA 20F.

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222 West Washington Square, Philadelphia, Pa.

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for highest quality bleached goods at lowest unit cost—

BECCO Concentrated HYDROGEN PEROXIDE

Up-to-date mills all over the United States have discovered these two **modern** essentials to a superior and economical bleach. **Becco** Concentrated Hydrogen Peroxide **plus Becco** Technical Service means a careful, accurate application of peroxide to **your** bleaching requirements. The result, to which so many mills bear testimony: the highest quality bleached goods at lowest unit cost. **Becco** can be adapted to the bleaching of any fabric—raw stock, yarns, knit goods, hosiery, piece goods, specimens, etc. Write for full details.

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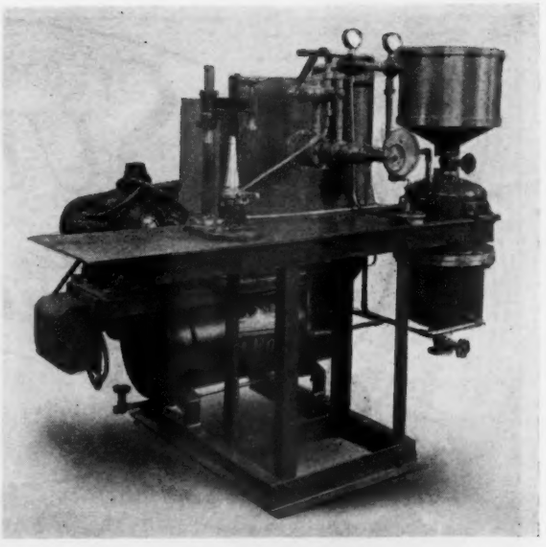

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ABOLISH BACKWINDING

Hygrolit conditioning units do away with necessity of backwinding—reduce spoilage —save time and expense. Write to nearest distributor and he will tell you how this modern yarn-conditioning equipment can yield you profits.

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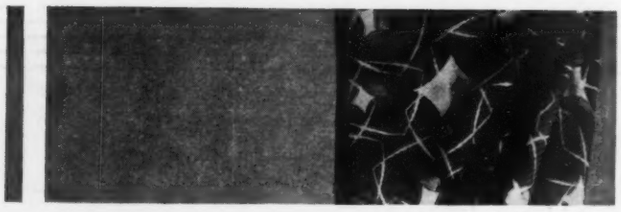

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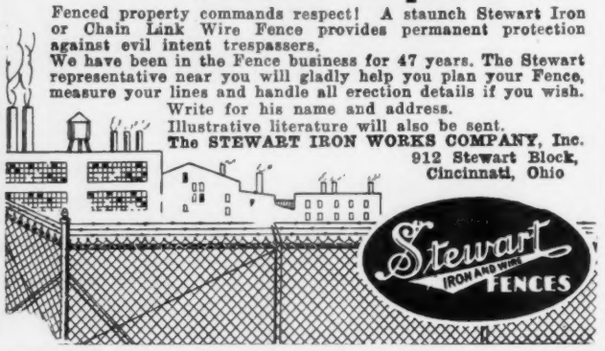

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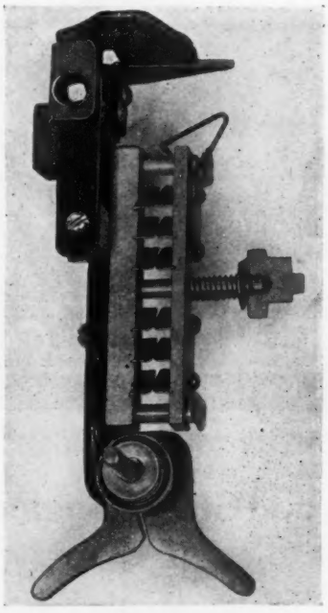

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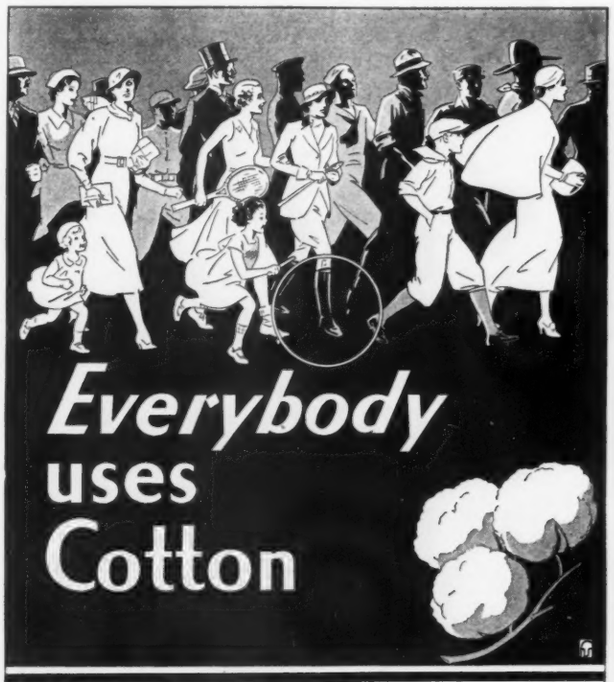

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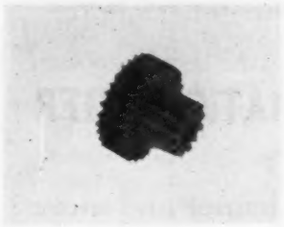

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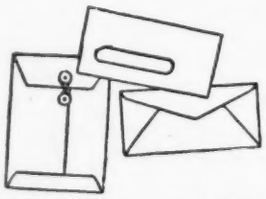

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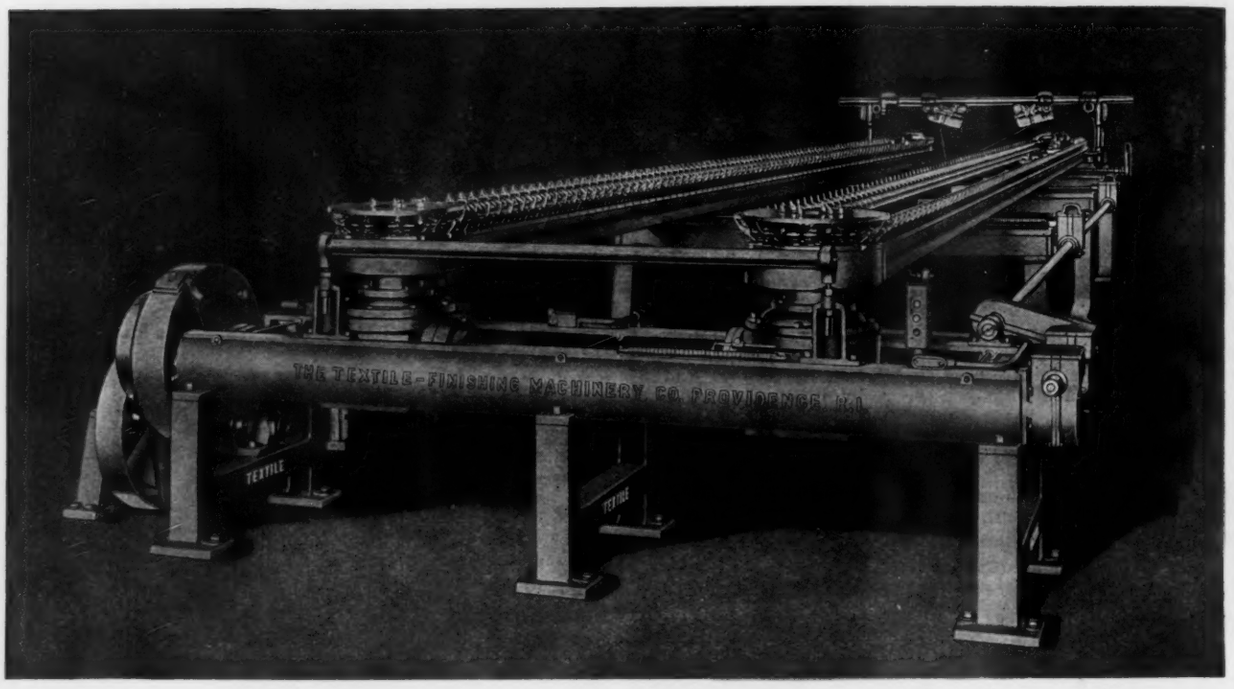

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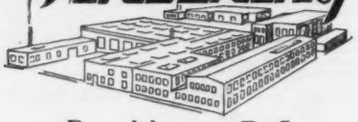
The Textile-Finishing Machinery Co.



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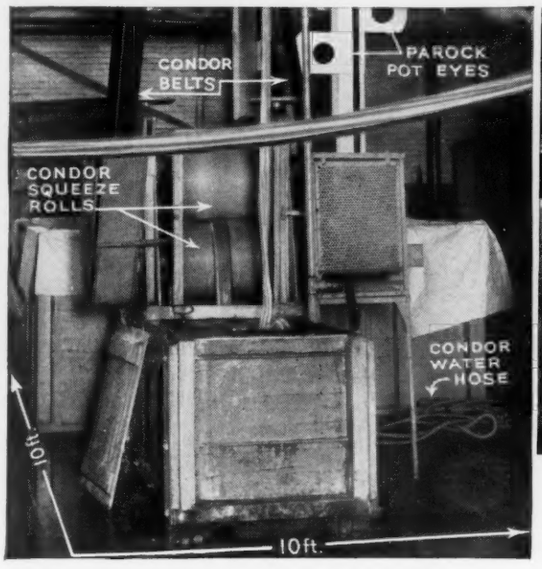

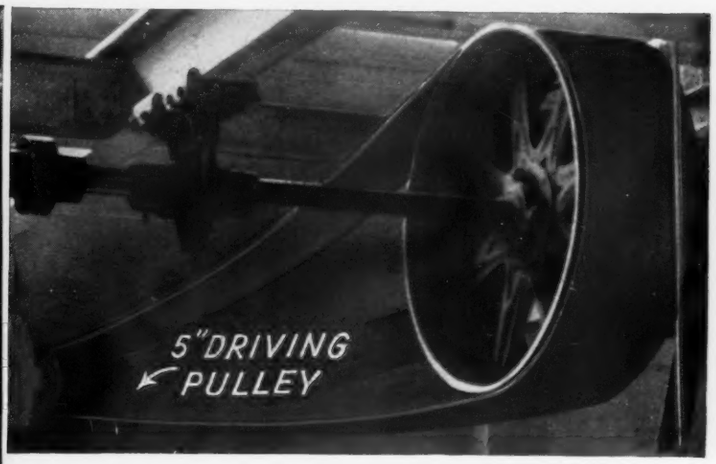

and the LOW TENSION

Compensated BELT

PAT. APPLIED FOR

TRADE MARK

Above: Four leading items of the Condor Line doing an efficient job of holding down maintenance costs. Note: Condor Transmission Belts, Condor Squeeze Rolls, Condor Water Hose, and Parock Pot Eyes.

Right: A 75-horsepower motor installation equipped with a 14" 6-ply Compensated Belt. Note small drive pulley. Plant engineer reports "belt shows no appreciable slip or wear after six months steady running."

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Condor LINE

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V-Belt	Steam Hose
Cone Belt	Mill Sundries
Air Hose	Suction Hose
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